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Address

THE OPPORTUNITY OF THE PEDIATRICIAN.*

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THEN AND NOW.

In the year 1880, in the city of Richmond, in a small room containing a mere handful of physicians, I had the honor, as secretary of this Section on Diseases of Children, to sit face to face with the first members who inaugurated a great advance in medical investigation.

Your leader then who, although over a quarter of a century has passed by, still represents preëminently the broad principles of pediatric science, was chairman of this Section and established it on a firm basis. We were thus honored in the very beginning of our existence by having as our presiding officer the father of pediatrics in America—Abraham Jacobi. The name has proved of good omen, and the meeting of 1880 was an epoch in the history of the American Medical Association.

To-day I have been bidden, and have accepted the privilege with pleasure, to welcome in Boston the fully-developed Section on Diseases of Children of the present day; a Section which is no longer a handful of pioneers, of explorers in an almost unknown field, but which is large in numbers, assured by success, representing all parts of our great country; a Section no longer striving even for recognition, but constituting one of the strong, vital principles of the whole Association, and working on a ground which has been well broken and which has brought forth a harvest of original American ideas.

I welcome you to this eastern city which is so distant from your homes that we can but deem it a compliment that you have journeyed so far. I congratulate you on the progress which, through your efforts, has been made in your chosen branch of medical science, a branch as important as it is intensely interesting.

IMPORTANCE OF PEDIATRICS.

What more important, what more worthy work for the adult brain can there be than by the study of the early periods of life to aid in securing better conditions, physical and mental, in the infant, the child and the adult, and thus to strive to make the people of the future in our great republic worthy of, and fitted to deal with, the responsibilities which such a republic brings with it?

In your hands and brains rests the duty and power to make or to mar the citizens of the future, and to see that in this respect one decade is superior to the previous one.

What this Section was needed for, what it was formed for, what it was from the first intended to do, was to place the study of pediatrics on the same elevated plane that had been established for adult life. To accomplish this it had in the early years of its existence to be iconoclastic. This iconoclasm and patient originality have been the weapons with which those who have devoted their thought to the study of early life have fought their way to the front, and placed the standard of pediatrics where it ought to be—side by side with the more perfected anatomic and physiologic investigations of adult life, which have become the true basis for the enlightened clinical study of human beings.

In order to understand the fully developed man in health and disease, it is self-evident that the anatomy and physiology, not only of the final stage of growth, but also of the various stages of development, from embryo to infant, infant to child and child to adult should be successively dealt with. Looking at the study of pediatrics from this point of view, it is to be noted that the subject is not a specialty, as is that of the eye or ear, but that it is a subject which requires special study, that there is a clinical medicine of infancy and childhood as there is of adult life and old age. One is almost distinct from the other; all are equally important, although it has been held by certain advanced thinkers that the clinical medicine of early life is most important, as it leads up to and influences so greatly that of a later period. In this sense, the study of disease in early life merely represents a large and important division of clinical medicine in general. That the study of the clinical medicine of early life should be taught separately and that it should be promoted by special societies, special journals, special books, special medical departments and special hospitals, is without question, for, as surely as the subject is left to general societies, general hospitals, general literature and general medicine, so will it be neglected and allowed to retrograde. This has been proved over and over again.

With few exceptions, there are no special diseases of children; on the contrary, it is the study of the manifestations of the different diseases as they appear in children which is so important and which shows how different are these manifestations from those of the same diseases as they appear in adults.

WORK OF THE SECTION.

As I look on the members of this Section, representing all parts of the United States, it is impressed on me that it is in your power to develop advanced and general truths; that you should deal in your sectional work with the living questions of the day, and that the results of your deliberations should be authoritatively promulgated by each individual far and wide throughout the whole country. Thus only can the unenlightened influence of the general profession or the laity be curbed in the harm which it is continually doing to the scientific work connected with the early periods of life. Thus only

* Address of welcome given at the opening session of the Section on Diseases of Children of the American Medical Association in Boston, June 5, 1906.

can the self-sufficient ignorance regarding the most critical phase of human existence be properly combated, and the general physician be forced to understand that he has but a limited knowledge of what he has been in the habit of considering simple questions, and on which he has been accustomed to give off-hand opinions and advice to the credulous mother of the suffering child.

Beyond the important questions of prophylaxis and hygiene, which play such a great rôle in the normal development of young human beings, it is no exaggeration to state that a large number of infants and young children throughout the land are suffering as much from the vigorous and ill-judged treatment of their zealous medical attendants as from the disease with which they started. This should be stopped. This it is the mission of the Section on Diseases of Children to terminate.

NEED OF CORRECT THERAPEUTICS.

The therapeutics of infancy and childhood, as understood by thousands of practitioners in Germany and France, in England and in America, is often a wonderful exhibition of the vagaries in which the human mind, sound on other subjects, can be induced to indulge. There is a total disregard of natural processes, an overexaggeration of symptoms which in the adult mean danger and require active treatment, while in the child they may be but simple and harmless manifestations of an over excited nervous system. Such is the *ignis fatuus,* so misleading not only to those who have not especially studied the early years of life, but also to those who have seen much of it, but with eyes blinded by traditions of the past.

In this age of rapid progress, of quick change and interchange of ideas, the precision of investigators in all branches of research has almost placed medicine on a level with the exact sciences. It would seem that we, who are endeavoring to place our especial branch on firmer ground, should consider with unusual care the opinions which we express to the profession at large, and to the laity, and that our writings should be founded on principles as accurate as the science of our day can make them.

NEED OF RELIABLE LITERATURE.

This has been but little done, and, consequently, in the last fifty years we have amassed volumes of most unreliable pediatric literature. This is one of the vital living questions of the day, which we should appreciate and grapple with.

The literature of a society gives evidence of the work which has been done by its members long after their individual labors have ceased and their places have been filled by a younger generation. If that literature has been well considered and shows evidence of representing not the hasty judgment of the day, but of being built on the broad foundation of exact science, it will be worthy of the study of our descendants and aid them in their work. As a sound unquestioned nucleus it will give them encouragement to broaden the field of their inquiry and to add new knowledge year by year.

It should be the aim of this Section that a lasting literature of this kind, ever young and fresh in the truths which it enunciates, ever presenting a solid center from which may radiate more extended investigation, shall emanate from its members. Let the papers presented to this Section so teem with unquestioned truths, with pages recording facts and finding small place for theories, that on their face they will prove the truth and not the fallacy of the ancient lines, which, in the present age of unbridled literature, might well be questioned—lines which read:

> Give books! They live when you are dead,
> Light on the darkened mind they shed,
> Good seed they sow, from age to age,
> Through all this mortal pilgrimage.
> They nurse the germ of holy trust,
> They wake, untired, when you are dust.

Gentlemen of the Section on Diseases of Children, I again give you sincere welcome and wish you all success in your deliberations.

Original Articles

POSTCRITICAL FEVER AND OTHER SEQUELÆ OF CROUPOUS PNEUMONIA.*

JAMES E. TALLEY, M.D.
PHILADELPHIA.

A study of the last 325 cases at the Presbyterian Hospital, Philadelphia, forms the basis for this article. Almost naturally one thinks of suppuration somewhere as the commonest cause of the persistence of fever after the crisis in pneumonia, though apparently endocardial and pericardial inflammation is a close second.

Among the suppurative cases we found five of empyema, one being interlobar, one encysted and one genuine case of lung abscess which was large enough to be diagnosed antemortem.

EMPYEMA.

An empyema with typical development as illustrated by the following cases makes the diagnosis easy:

CASE 1.—A white woman, aged 47, with typical signs and symptoms of pneumonia involving the lower two-thirds of the left lung, had apparently a crisis (there being a simultaneous fall in temperature, pulse and respiration) on the seventh day, but the temperature immediately went up again, fluctuating between normal and 102 F. The recurrence of the fever, coupled with the fact that though the bronchial breathing and râles in the left chest began to disappear, the percussion note became flat and there was a progressive loss of fremitus, pointed to the presence of fluid there. This, in connection with the fact that the leucocytes which were 17,800 two days before the crisis, increased to 31,600 two days after the crisis, made empyema almost sure. The needle showed pus, and the operation evacuated about two quarts.

CASE 2.—This was less characteristic than the preceding case. The patient was a corpulent woman, aged 48, who had had pneumonia at fourteen and several attacks of pleurisy during her life. On admission to the hospital she showed the signs and symptoms of consolidation of the left lung with a friction rub at the base and the squeaking râles of bronchitis on the right. There was no attempt at a crisis, the temperature ranging from 100 to 104 F. throughout the course of the disease with very small diurnal remissions. In addition to the signs in the left chest, the patient developed a somewhat enlarged and tender gall bladder and diarrhea; the Widal reaction was positive, which made one suspect that the patient was developing typhoid, as it was prevalent at the time, though a leucocytosis of 36,400 rather negatived the idea. Death ensued on the twentieth day from the chill, and the postmortem showed that the left lung was in a state of gray hepatization, and that the left pleura contained semisolid pus which would not pass through any needle ordinarily used for exploratory tests.

CASE 3.—This case of interlobar empyema was in a colored girl aged 13 who had a typical croupous pneumonia involving

* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

the whole apex and the posterior aspect of the right lung below. The crisis occurred on the twelfth day with a simultaneous fall of temperature, pulse and respiration. However, though the respirations fell from an average of sixty to the twenties, the pulse rate and temperature did not reach normal. The latter ranged from 100 to 101 and 102 F., which was supposed to be due to a purulent otitis that had developed about the tenth day; but though the otitis improved, the temperature still persisted and made one look for other causes. Three examinations of the sputum on the twelfth, fifteenth and nineteenth days showed pneumococci and streptococci, but no tubercle bacilli. The leucocytosis kept in general about the same level. It was 28,800 soon after admission, 45,200 at the time the otitis was developing, and nine counts from this time until pus was actually demonstrated, showed 32,066. The persistence of leucocytosis, the hectic-like temperature, the continued indicanuria, and the whole aspect of the patient made pus somewhere probable, though the classic sweats and chills were wanting. It was only after aspirating three times that pus was located. The case is reported in full by Dr. Jopson and myself[1] with the reasons for considering it an interlobar empyema, therein set forth.

CASE 4.—This case of encysted empyema occurred in a negro teamster of twenty-eight who had his crisis, with profuse sweats, five days from the initial chill, but the temperature soon rose again and remained elevated until death ten days later. He showed on admission signs of consolidation on the left side from the apex to the fifth rib, and posteriorally, over the whole left lung. Also there were some signs of consolidation at the right base. Within a few days the absolute dullness, distinct breath sounds and absence of vocal friction aroused the suspicion that there was liquid in the left upper chest, which suspicion was confirmed by aspiration. The operation evacuated 32 ounces of pus, which immediately accumulated again as shown by postmortem. Also there developed pleural friction and marked consolidation of the right side, and pericardial friction before death.

Autopsy.—The autopsy showed that the left pleura contained one and a half quarts of fluid pus which was encysted in the space from the apex to the seventh rib. The right pleura showed some signs of friable adhesions. The left lower lobe was entirely collapsed and showed one small abscess cavity and several very small abscesses. The right showed a consolidated lower lobe. The pericardium was in a condition of fibrinous lace work, and in a large branch of the pulmonary artery, a long, well organized clot, firmly adherent to the walls and evidently septic in origin, was found.

CASE 5.—The fifth case of empyema was in a boy of six, and furnishes an example of the wide-spread changes that may occur in the short space of eleven days counting from the initial chill to death. The attack began with vomiting, chill, fever, and in rapid sequence, delirium, herpes, rigidity of the neck and consolidation of the left base, followed. The temperature remained about 102 F. until three days preceding death, when it fell by lysis to normal and arose again to 104 F. just previous to dissolution. The left lower lobe, and the lower portion of the upper lobe, showed throughout signs of consolidation with a rapid development of absolute flatness and muffling of respiratory sounds and râles during the last two days of life. The right lung gradually developed signs of consolidation, but never so markedly as the left. Two days before death there developed over the right side, a tympanitic note with a distinct metallic tinkle heard both during inspiration and expiration. The coin test was very marked also, thus pointing to the presence of pneumothorax, probably due to the rupture of one of the small abscesses found postmortem.

Autopsy.—Both the right and left chest showed purulent pleuritis. The pleural cavities were full of yellow pus and many soft adhesions were present. The left lung showed complete consolidation of its lower lobe and a part of the upper. The upper lobe of the right lung contained three abscesses about the size of hazel nuts. The middle lobe contained multiple small abscesses, and a few were also found in the upper portion of the lower lobe.

1. Archives of Pediatrics, September, 1905.

Though not pertinent to the immediate subject, the markedly contracted colon, and a thin-walled diverticulum on the lower aspect of the greater curvature of the stomach, were interesting.

ABSCESS.

CASE 6.—The typical abscess was in a white woman, aged 27, who was admitted to the hospital too ill to give any history except that she had had pneumonia. She was coughing up almost continually large amounts of foul smelling purulent material. Three examinations of the sputum at intervals of several days, showed uniformly that streptococci were abundant, elastic tissue present in small amount, and tubercle bacilli, hematoidin and cholesterin crystals were always absent. The temperature ranged from 100 to 102.3 F., presenting a moderate evening rise and morning fall until the fourth day before death, when it went down by the same remission, to sub-normal.

Examination.—Repeated examinations of the chest showed that the right side appeared larger than the left and expanded more on deep inspiration. From the apex to the third interspace on the right side there were all the signs of consolidation. In this area also were found the cracked-pot sound and amorphic breathing, more marked posteriorally. There were also bubbling râles. Below the spine of the scapula the note was hyper-resonant. The left side was less expansile than the right. Tactile fremitus, percussion resonance, and bronchial breathing all were impaired, but less so than on the right. Especially, below the spine of the scapula were the breath sounds less broncial and more distant. Friction sounds were well developed toward the base.

Heart: The apex beat of the heart was palpable in the midaxillary line, seventh interspace. There was a mitral systolic murmur transmitted and heard faintly in the back. The aortic and pulmonic sounds were heard best to the left of the midclavicular line.

Liver: The liver was a finger-breadth below the costal margin, and there was some tenderness in the right iliac fossa. Two apirations in the usual places on the inner side gave negative results.

X-Ray Examination.—The *x*-ray examination with the screen, showed what appeared to be an empty abscess cavity in the upper part of the right chest, and a filled cavity in the lower part of the right chest. The skiagraph pointed to the same conditions. The autopsy showed that the inference was right about the empty cavity above, but the supposed filled cavity in the lower part was in reality a bronchiectasis in which the bronchial tubes were filled with secretion.

Autopsy.—The right lung, upper lobe, was completely consolidated. A small abscess with thick organized wall on the anterior surface, and a large abscess near the hilum with numerous small metastatic abscesses in the lower portion were found. The middle lobe was normal. The lower lobe was crepitant. There were no nodules. The bronchi were markedly dilated in the lower portion and surrounded with a good deal of fibrous tissue. The left lung showed complete bronchiectasis and atelectasis and obliterative pleuritis, and there were also obliterative pericarditis, dilatation of the ventricles of the heart and some atheroma of the mitral valves, and commencing hypertrophic cirrhosis of the liver.

CASE 7.—The second case of single abscess was in a white man who had pneumonia and hemorrhagic nephritis. It was hardly large enough to be diagnosed during life, since it was only about half an inch in diameter, but it had a well-developed encircling wall of fibrous tissue.

ENDOCARDITIS AND PERICARDITIS.

CASE 8.—A colored man, aged 25, who had had rheumatism and typhoid fever, developed pneumonia of the right side from the spine of the scapula to the base. There was also a patch of consolidation beneath the left scapula. The crisis occurred on the tenth day, but the temperature rose gradually again to 102 F. and kept elevated for about a month. The heart showed no murmur on admission, but the sounds were dull and the apex was a little outside of the normal position. During this interval of fever, the sputum on several occasions showed pneumococci but no tubercle bacilli, and a blood cul-

ture a few days before the crisis was negative. Almost a months after the crisis there was an exacerbation of fever, pain in the left chest with the development of a pericardial friction at the base, and a well-marked systolic and diastolic murmur at the apex with reduplication of the second sounds. Later there was also a pericardial friction at the apex. Still another month later the pericardial friction had entirely disappeared and the endocardiac murmur had improved, though that persisted at the time of his discharge.

CASE 9.—A white man who said he was fifty, but who looked sixty, had emphysema, myocarditis and atheroma. The fourth day after admission he showed a consolidation of the right apex, and about this time there was acute dilatation of the heart. The apex beat became diffuse, the percussion area somewhat increased and the pulse ran to 200 and above, the rhythm being fetal in type. On the eighth day the temperature fell to normal and remained at about normal for a week. During this time the pulse ranged from 80 to 90. At the end of the week the temperature rapidly arose, reaching 104 F. in the next few days. The pulse ran up from 100 to 140 and became irregular. Then a well-developed systolic murmur at the aortic cartilage, well transmitted into the neck, developed and later this murmur became both systolic and diastolic, with its maximum intensity at the aortic cartilage. The aortic second sound was entirely obliterated, the pulse became of the Corrigan type and the man died on the fifth day from the onset of the endocarditis.

CASE 10.—Another case of endocarditis was that of a colored man, aged 23, who had pneumonia on the right side posteriorly with crisis on the eighth day. The heart sounds were perfectly normal on admission. He had a practically normal temperature for six days after the crisis, when there was a simultaneous rise in temperature and development of a roughening of the mitral systolic sounds. The temperature persisted for twelve days and then fell to normal, but the systolic roughening still persisted when the patient was discharged almost a month after its first appearance.

CASE 11.—A white woman, aged 20, had a chill and developed at once a consolidation and pleuritic rub at the right base. She had on admission a presystolic mitral murmur which was evidently an old condition. A week after the chill, the signs of mitral obstruction had increased and there had developed an indistinct diastolic murmur heard best over the aortic area. Still a few days later and there were plain signs of aortic insufficiency, as shown by a soft-blowing diastolic murmur faintly heard in the aortic region transmitted down the right side to the sternum, and still heard at the ensiform. The aortic second sound could not be heard. A little less than a month after the onset of the pneumonia, the heart appeared to have returned to its condition on admission; the temperature came down by lysis, reaching normal on the ninth day, and during the days when the roughening at the aorta was developing the temperature was normal or slightly subnormal. Also the endocarditis did not appear to affect the leucocytosis, as the leucocytes on the third, fifth and tenth days were, 23,400, 17,600 and 11,600, respectively.

Two of the cases of endocarditis, one with pneumonia and meningitis, developed a pericardial friction during the course of the disease.

RELAPSING PNEUMONIA.

CASE 12.—A colored woman, aged 22, was admitted to the hospital with all the typical signs and symptoms of croupous pneumonia of the upper third of the right lung. On the twelfth day from the onset she had what appeared to be a true crisis, but almost immediately the temperature rose again and at the same time she complained of pain at the opposite apex and gradually developed consolidation of the whole posterior aspect of the left lung. The temperature persisted in her case for five weeks from the onset. The left side was tapped twice, once with no result and once half an ounce of cloudy fluid was withdrawn, which on examination showed no pus. Her mother had died of pneumonia, her father of tuberculosis and during the attack she, herself, gave but a slight reaction to the infection as shown by the mild temperature variations and the moderate leucocytosis ranging from 9,000 to 12,000. However, her sputum was always free from tubercle bacilli and she made a good recovery.

PLEURISY.

CASE 13.—A woman, aged 25, with pneumonia of the left base, proved rather conclusively that occasionally persistent pleurisy may be the cause of continued fever after the crisis. She had her crisis on the seventh day, but the friction rubs persisted at both bases, especially on the affected side. A week after the crisis there developed severe pain over the previously consolidated area, which persisted for over two weeks and was accompanied by a temperature of about 100 F. That this was due to the pleurisy, seemed evident from the persistent pain, the disappearance of the previous bronchial breathing, the impaired vocal resonance, the distant breath sounds and from the fact that the screen showed that the area of consolidation had largely cleared up above and at the very base, but that above the base and at the site of the most acute pain, a deeper shadow still persisted.

BRONCHITIS.

Several cases of bronchitis showed a mild persistence of temperature for some time after the crisis which it seemed perfectly plausible to attribute to the bronchitis which existed in the unaffected lung, and in one case in the unconsolidated portion of the affected lung. All the signs and symptoms of the pneumonia pointed to a croupous process. It seems probable that we do not dwell enough on the rôle that a bronchitis, especially in the unaffected lung, may play in the prognosis of pneumonia. Such a condition has seemed to me to be particularly apt to exist in those past middle life who have already an existing heart lesion.

OTITIS MEDIA AND MENINGITIS.

In two cases in the series there was a return or increase of the fever due to otitis. Of course, it is only the obscure cases of ear trouble that are confusing.

CASE 14.—A robust man, aged 35, developed a typical pneumonia of the right lower lobe. Headache followed by delirium was an early symptom. One the fifth day from the chill he showed a retraction and rigidity of the neck, and well-developed Kernig's sign. The spinal fluid showed pneumococci and a well-marked to and fro pericardial friction sound at the base of the heart developed the day before death which occurred six days from the onset.

PAROTITIS.

Six years ago I reported[2] a case of suppurative parotitis occurring during an attack of croupous pneumonia in an elderly woman. The first evidence of suppuration was on the seventh day, but so rapid was the development that it discharged on the tenth day. The patient made a good recovery and died, a year later, of interstitial nephritis, which existed at the time of the pneumonia. The number of cases that were reported immediately afterward seemed to show that parotitis as a complication of pneumonia was not so rare as the published cases led one to suppose.

HEMORRHAGIC NEPHRITIS.

CASE 15.—A young white man, aged 25, a silver printer by occupation, was admitted with signs of consolidation of both bases, but worse on the right. The urine on admission showed only albumin .05 per cent and hyaline casts, but a few days later there developed evidences of hemorrhagic nephritis—albumin, hyaline, pale and dark granular, leucocytic and blood casts, with some red blood corpuscles, were found. Just when and how the process began is not clear from the history, but the temperature fell from 103 F. to normal the second day after admission and remained at normal or a little sub-normal.

2. Philadelphia Med. Jour., March, 1900.

until death eight days later despite the fact of the small circumscribed abscess in the lower right lobe, and of the nephritis.

Autopsy.—The autopsy showed the right lower lobe solid, the upper half in a condition of gray hepatization, and the lower half in red hepatization. Deep in the substance was an abscess one-third of an inch in diameter, with a well-defined wall. The left lower lobe showed scattered pneumonic areas. Of the kidneys there is recorded only that the cortex was diminished and the congestion of the entire organs, intense. The cultures after the postmortem showed in the heart a mixed culture of colon bacilli and *Staphylococci aurei* in about equal parts. The spleen and right lung showed pure colon bacilli, and the left lung pure staphylococci.

Remarks.—There is much to be desired in the history of this case to determine whether it really was a true case of croupous pneumonia with secondary infection, or whether it was primarily due to the bacteria found postmorten.

THROMBOSIS AND NEURITIS.

CASE 16.—A white woman, aged 39, with pneumonia of the left lower lobe had her crisis on the eighth day. Four days later there was a very slight elevation of temperature, and a sharp pain developed in the left leg from the middle of the thigh to the heel. There was no tenderness on pressure, and no disturbance of sensation other than the pain. About a week after the first appearance of the pain, the leg began to show an edematous swelling. The whole history pointed to the fact that it was a femoral thrombosis. This same woman first complained of numbness of the right hand along the course of the ulnar nerve, two weeks after this crisis. Two days later there was distinct numbness of the distribution of the left ulnar nerve. There was some pain, some weakness and disturbance of sensation of both arms and hands. The limitation of the numbness to both ulnars would make one think it was probably due to pressure, but there was nothing peculiar noted about the patient's decubitus at any time, and at the time the neuritis developed, she could be propped up and could soon sit alone. The disturbance was marked enough at one time to require splinting of the right arm and hand. The hands were better, but not well when she left the hospital about six weeks after her admission.

COLITIS.

CASE 17.—During the past winter a robust man who appeared to be doing well with pneumonia, was seized with most intense enteritis which resisted all treatment and to which the patient soon succumbed. As a postmortem examination was refused, one can only infer from its remarkable severity, that it was a croupous colitis.

OTHER SEQUELÆ OF PNEUMONIA.

Among the sequelæ of pneumonia that were evident to the naked eye were two cases of carbuncle, one at the back, the other at the neck, which developed in two young white men about a week after the crisis. Both men had good kidneys. A third man of middle life had two abscesses of the chest, one of which might have been due to the single salt injection that he had had, but the other one was so far from the site of the single puncture as to make this cause unlikely.

CASE 18.—A white man, aged 40, who drank from ten to fifteen glasses of whisky daily, well demonstrates some of the phases of pneumonia in the alcoholic. His attack began with a temperature of about 100 F. which usually reached normal in the mornings and which persisted for over two weeks. The sputum was bloody and at times was profuse enough to be called a hemorrhage. After two weeks the material expectorated became rather milky white, but showed only pus and no tubercle bacilli. The consolidation was under the right scapula. Ten days after admission he developed delirium tremens, and after the delirium tremens he relapsed into a condition of confusional insanity which persisted for many weeks, but he finally made a good recovery.

Several patients had delirium for a few days after the crisis, which cleared up on forced feeding more rapidly than the delirium in cases of typhoid fever, which often persists for a much longer time because the inanition is greater in consequence of the longer duration of the fever.

SUMMARY.

The causes, then, of posteritical fever in croupous pneumonia are evidently manifold, and the exact cause can be determined in a given case only by careful and repeated examinations of the patient. Even when such examinations are apparently negative one should be slow in attributing the fever simply to delayed resolution or to autolysis alone. The number of small abscesses found in the stage of gray hepatization, postmortem, would incline one to believe that it is not alone the slow resolution, but perhaps more often a varying degree of this purulent tendency, especially in the stage of gray hepatization, that explains the fever. Though the abscesses are usually multiple, one case showed distinctly one small abscess which in itself might have caused the persistence of fever, and it is conceivable that such an abscess may discharge undetected, or, surrounded by an encysting wall, be gradually absorbed and the patient recover without the exact cause of the fever ever being known. Even an encysted empyema, if small, may be hard to demonstrate.

The value of the Roentgen ray in detecting these conditions in the chest is variable. It is the common experience of a thickened pleura in this class of cases that renders the *x*-ray of less value. Given a previous consolidation without much thickening of the pleura and the shadow is less uniformly dense than that of fluid in the pleura, so that under such circumstances a loculated empyema or a full abscess cavity is apt to stand out by its dense shadow in contrast to the less homogeneous shadow of the resolving pneumonic consolidation. Under similar circumstances an empty cavity is even more evident, surrounded, as it usually is, by its wall. One case showed that an area of bronchiectasis, with the bronchial tubes filled with secretion, simulated an abscess. The mistake was all the more natural, as there existed above a well-defined cavity of an abscess that had discharged.

It is doubtful if the number of endocardial and pericardial involvements in this series really represents the vast importance that must be attached to this cause as the factor in many fatal cases. One must be alert for this complication, especially in patients who have an old endocarditis or atheroma. The cases here detailed show that the right side of the heart is by no means free from serious involvement. The development of a systolic murmur may be explained by the anemia well known after pneumonia or by the relative insufficiency due to the weakened heart muscle, but the development also of a diastolic murmur usually means that there is genuine endocarditis, as is proven by the autopsies.

DISCUSSION.

DR. DELANCEY ROCHESTER, Buffalo, said that mediastinal abscess as a course of posteritical fever had twice occurred in his practice. He also wished to confirm the statements made regarding ear troubles. He had two cases of pus in the middle ear without pain and without the presence of pus in the external meatus. In another case he had there was a subdural abscess producing a hemiplegia on the opposite side of the body, but that most cases of posteritical fever were due to empyema of the pleura.

DR. N. S. DAVIS, Chicago, said that unquestionably the most important cause of posteritical fever met with after croupous pneumonia is inflammation of the pleura and he believed it to be our duty to search with the greatest care for this cause in

every case of persistent fever following the crisis in pneumonia. It should not be forgotten that inflammation might occur elsewhere and cause fever. For instance, now and again inflammation may be met with in one or more joints as a result of secondary infection; of these cases he has seen many. It was well known too that an acute bronchitis occurred often as the result of infection by the organisms of croupous pneumonia, cases in which a true croupous pneumonia did not develop. He said he had seen cases in which there was a persistent fever following the occurrence of a croupous pneumonia; which he could not account for except on the theory that the bronchitis persisting after the pneumonia had passed the crisis, was its cause.

The possible presence of an endocarditis should not be forgotten in these cases, even when no endocardial murmurs, or no clearly defined evidences of endocarditis are discernible. The long persistence of fever following pneumonia is usually due to malignant endocarditis.

DR. J. A. LICHTY, Pittsburg, said that an examination of the ears in cases of prolonged fever following a croupous pneumonia would often result in finding the cause. Another point that had not as yet been touched on was the relighting of an old tuberculous focus, one which had apparently been healed or one which one knew nothing about. This would be followed by symptoms of an ordinary pulmonary tuberculosis.

DR. ALEXANDER LAMBERT, New York, said that the frequency with which empyema developed and the difficulties attending the diagnosis were well known. One reason why it so often escaped detection was because it was more often a complication of the pneumonia than a sequela. Any one man's personal experience is too small to generalize on, but so far as his experience went it was more often a complication than a sequela of pneumonia. Some years ago he studied the variations of leucocytosis during pneumonia, taking a daily count. In those cases in which empyema developed the number of leucocytes was doubled in 24 hours. Only in those cases in which empyema developed did the leucocyte count increase 100 per cent. or more in 24 hours and often without any change in the physical signs. In some cases there was only a slight rise in the number of respirations a minute. Often when one lobe of a lung was becoming involved and another lobe simultaneously resolving, there would be a great increase in the leucocytosis; or, if a large area of lung resolved quickly the leucocytosis would be greatly increased. From various causes the leucocytes would sometimes rapidly increase for two or three days, so that at the end of that time they would be more than double the first count. But only in empyema has he found an increase of 100 per cent. or more in any single 24 hours. This doubling of the leucocyte within 24 hours was, in his opinion, the surest sign, but to be sure of the fact, a daily count must be made, a thing which, of course, was not always possible.

DR. LOUIS LEROY, Nashville, Tenn., spoke of a malarial infection giving rise to posteritical fever after an attack of croupous pneumonia, a point that had not yet been brought out. He recalled two or three cases, following a crisis, in which the temperature persisted, running as high as 103, and then down, and with absence of any signs; a blood examination was made, revealing the presence of the plasmodium. He said that he had seen this same rise follow the shock of an operation for appendicitis. These patients, no doubt, had their diseases in a latent state, and they were rekindled by the pneumonia or by operation. An attack of malaria was brought on in each case; the disease had remained quiescent, the patient having been a sufferer more or less chronically for years.

It Helps Him.—The physician who joins his county society and becomes an active member, expects to get something more than protection for his own pocket. He expects, as he hears his fellow-members read and discuss papers, detailing their experiences, and as they submit pathologic specimens, to gain knowledge and wisdom. He goes away from the meetings better able to cope with the difficulties that arise in everyday practice. This is especially so in sparsely settled districts, where it is not possible at critical times to call in a brother physician in conference.—*Medical Sentinel.*

INCURABLE EYESTRAIN.*

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I can find in text-books no systematization, no explicit statements, not even any distinct recognition of a series of clinical facts illustrated somewhat frequently in office practice, and still more frequently in hospital and dispensary work.

In thinking over my cases I have been surprised that so many have had eyestrain from causes beyond eradication or neutralization. The conditions being as they were, it was impossible to stop symptoms that were evidently due to what we call eyestrain. The causes simply could not be reached. We have looked at these conditions from every other standpoint except that of eyestrain, while it was precisely the eyestrain that mostly concerned the patient. Let us take this point of view:

Eyestrain[1] may be defined as the local reflex, or general results of ocular effort caused by congenital or acquired defects or weaknesses of the optical or sensation-making mechanisms of the eyes, by over-use of normal eyes, by injurious occupation, etc., or by diseases of other organs, which interfere with ocular function. Eyestrain is incurable, of course, when these pathogenic causes are ineradicable.

The recognition, in an individual case, of the precise reasons why eyestrain is incurable, or of the conditions impossible to remove, is highly necessary, in order:

1. That we may make the patient understand the unfortunate limits and circumstances of his life; that we may advise him against certain occupations, prescribe for him the best hygienic safeguards, whereby symptoms may be avoided, dangers lessened, etc. In such cases it is especially necessary that he understand the precise nature of the fatalism under which his life must be lived.

2. That other physicians, in ignorance of the nature of his trouble, may not err by treatment of the patient, or by operations, which can not affect the single source of the mischief. It is bad enough that thousands of patients should be gastrologized, laryngologized, gynecologized, etc., for easily curable eyestrain, but it is far worse when the eyestrain is incurable. Hunted by their mysterious disease, patients blindly and vainly pursue relief by running from one physician to another, drift into invalidism, or into a despair which often ends in the suicide either of self-delusion (quackery, Eddyism, etc.,) or of genuine self-murder.

The causes of eyestrain that we are unable to abrogate or neutralize may be classified as follows:

1. Congenital anomalies.
2. High degree of ametropia.
3. The sequelæ of inflammatory disease, traumatism, etc.
4. Amblyopia, or other injury of ametropia.
5. Chronic heterophoria or heterotropia.
6. Interruptions or contraindications of the normal coördinations of dextrocularity and dextromanuality.
7. Cerebral or neural disease.
8. Systemic disease, or diseases of interrelated special organs.
9. Injurious occupations, unhygienic use of the eyes, etc.

1. *Incurable Eyestrain Due to Congenital Defects, Etc.*—The most important and most frequent of these congenital anomalies is albinism, that strange failure to secrete the customary pigment of the dermal structures of the body, of the retina, iris, etc. Many years ago I

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

1. "Eyestrain" is an incorrect and misnaming word, but it has become so common and accepted that it is now impossible to supply its place by a better and more accurate term.

published the results of a good deal of study of "The Pernicious Influence of Albinism on the Eye." It is a pity that the lessons of that study have been so little heeded by ophthalmologists, for the pathologic significance of albinism is almost wholly confined to the eye, and there is no class of possible patients more in need of our help and none so neglected. Although we can not do away with all of their afflictions, we may greatly mitigate them. The crushing pressure of the lids to shut out the light produces a high degree of astigmatism, at axis 90 degrees in hyperopes, and this, with much patience in diagnosis, may be relieved. In this relief there is perhaps a doubling of the visual acuteness. But at best we can bring the albino to only about 20/50 of normal vision. Possibly also by this lessening of the amblyopia we lessen a little the nystagmus. I gather that this nystagmus of the albino is the result of a continuous and never-to-be renounced search for a portion of the retina not so exhausted by the flooding light as is the macula region, whereon the image may fall, and which will give the brain a more delimited or defined image as a stimulus. The significance of ocular albinism pertains preponderatingly to the iris. If that could be pigmented the albino's case would not be so hopeless or grievous. In one case I tried an experiment of fitting a 1/4 in. ametropia-correcting lens in the center of a deep tinted London-smoked toric lens. The sudden cessation of the nystagmus which resulted brought the man down in a swoon and I could get no repetition of the experiment.

Colobomas and many other anatomic defects of the eyes may in many ways interfere with the formation of optical images. These anomalies of the fundus, I think, are not so likely to produce eyestrain as are those of the iris. For a number of years I have treated a girl with a coloboma of the iris directly below the pupil in the left eye, about 1/4 in. wide at the pupillary margin and narrowing at the corneal border. While she was a child and not studying much there was not a severe eyestrain, but as she advanced in years and scholarship there was no correction of her ametropia that gave more than the palliation of her severe headaches, brought on by study. If one might dare, if there were no danger, and if the operation were surgically successful, thorough tattooing of the cornea over this rent would undoubtedly give her relief. The continuance of her studies, amount of near-work permitted, and the ordering of her life depend on the severity of her eyestrain symptoms.

There are many other kinds of congenital anomalies which might produce eyestrain, such as microphthalmos, cataracts, peripherally located pupil, malformations and malpositions of the lenses, persistent hyaloid artery, pupilary membrane, enophthalmos, etc. I have no sufficiently well-observed cases to report illustrative of the principle involved. I have no doubt I have negligently overlooked a number. In congenital cataract or in case of lenticular pigment spots occupying much of the pupillary area it may be best to permanently atropinize the eye.

2. *High Degrees of Ametropia.*—These are in one sense, perhaps, examples of congenital anomaly, especially that of hyperopia of six or more diopters. Illustrative cases have occurred in all of our practices. What we are likely to forget is that they must almost always necessarily handicap the patient, even if, as may rarely happen, the normal visual acuteness may be retained. This will arise either because amblyopia has been chronic or has been firmly established before proper glasses have been secured, or because no glasses can give perfect correction of such cases. I remember one patient whose errors were:

R. + S. 8.00 + C. 2.75 ax. 68°;
L. + S. 7.75 + C. 2.75 ax. 105°.

Neither eye had been disused and the vision in each was 20/60, later 20/50. It would have been better if this defect had been anisometropic. A second case shows the same amblyopia:

R. + S. 8.00 + C. 1.00 ax. 20° = 20/60
L. + S. 7.50 + C. 1.00 ax. 150° = 20/60

After six years' struggle reduced to 20/20.

In another case showing:

R. + S. 6.00 + C. 2.50 ax. 180°
L. + S. 5.75 + C. 1.75 ax. 150°

the right had been excluded and only 20/60 vision retained, while the other eye was brought to 20/20. In such cases anisometropia is a poor, but preferable blessing. If we could place our lenses (as has been dreamed of) inside the lids, and give them the same motion as the eyeball, the problem would be solved, at least in great part. It is possible, but not probable, that this may be done. In approximation to this ideal our lenses should be toric, set as close to the cornea as possible, after close cropping of the lashes.

In high astigmatism the first effect of full correction may be rejected as irritating until the ocular mechanism has become habited to it, and until the necessity becomes unconscious of turning the head instead of the eyes, in looking at objects not in the center of the field of vision. When there is high anisometropia, there may be some degree of persisting eyestrain, although I have found it will generally and eventually yield to obstinate persistence, unless the amblyopia has by neglect become incurable. I have one patient, coming to me in middle life, who is now successfully wearing over a six-diopter correction of monocular astigmatism, with re-establishment of almost lost visual acuteness, and with relief of long-existing ocular reflexes. The sole ametropia of extreme proportions that can not possibly produce eyestrain is simple myopia in a one-eyed person. One of my patients, a great literary genius, lived for about thirty-five years, and during this time did an enormous amount of literary labor every day, with a single eye, having about twenty-five diopters of uncomplicated myopia, and he did this without the use of correcting lens. His pen point was necessarily placed about three inches from the cornea. He never showed a sign of eyestrain as we define the term. His optical defect and necessity had a subtle and profound influence on his intellect and character, and on the literary qualities of his published works—but "that is another matter."

In hyperopic defects, and especially in those of high degree, there is, of course, and almost always, a greater or less admixture of astigmatism; and this demands correction with perfect nicety, in order to prevent malfunction. Toric, close-fitting lenses, usually bifocals, frequent changes, skill of the optician, and all the rest, are of the utmost importance. Moreover, in high binocular ametropias there is likely to be incoördination of the external ocular muscles, and also, not to be overlooked, frequent irregularities of accommodation. Partial paralysis of accommodation, or undevelopment from disuse, is likely to exist in such cases and differing in degree in the two eyes.

As to high defects the following are noteworthy:

R. + S. 0.50 — C. 4.50 ax. 15° = 20/50
L. + S. 0.50 — C. 5.50 ax. 180° = 20/50

The anomalous axis of the right did not throw this eye

out of function, because the man was a right-handed man, and the left clung to life because of its normal 180° axis.

I have a little fellow twenty-seven months old who is wearing B. E. + Sph. 10.00, apparently with almost equal acuteness of each eye. We shall probably find some astigmatism when he is a year or two older. His strabismic eye is now straight, and the glasses are so grateful to his nervous system that the baby yells, *Wo sind meine Gläzele,* if they are left off a minute.

A man of 36 could barely count the fingers with his right eye, and no lens seemed to improve. I stuck to the problem instead of calling it "amblyopia," and I found that — Sph. 6.50 + Cyl. 9.00 ax 10° saved the man's eye and gave him 20/50 vision. This 15.5 D. in a non-traumatic case, at least in one meridian, is the highest I have ever met. There was 6.00 D. in the left, with 20/40 vision.

3. Inflammations and Traumatisms.—These may have such organic and irremediable defects in one, or even in both, eyes, that the visual act becomes thereby pathogenic. The most common of these conditions is, perhaps, the nebulous or leucomatous cornea following keratitis. In the young (and the younger the better the success) we may often lessen the opalescence by Pagenstecher's ointment and massage, and other methods of treatment. Unfortunately, Dr. Alleman's proposal of electric stimulation by the contact electrode has not, as was hoped, been adopted or demonstrated of much value.

A profound impression was left on my mind by the history of one patient, a man sent to me by a general physician, with the ready-made diagnosis of "migraine." The man had never had sick headache, so his disease was not "migraine;" the general physician could not cure this patient's headaches, so he sent him to me. I at once notified the physician, 1, that the man never had had "migraine;" 2, that the man's headaches were caused by eyestrain; 3, that in all probability I could not cure the man of his eyestrain headaches. This was because he had a nebulous cornea of the left eye, also a very high mixed astigmatism, giving about 20/50 vision. I ordered glasses, and impressed on the patient the necessity of returning soon and frequently. Pursued by the relentless mystery of his pain, the man fled to the neurologist, who drugged and massaged him without relief; the neurologist then turned him over to the rhinologist, who took out all the turbinates of one side of the nose, saying those of the other side must be taken out, and eventually the frontal sinus opened up "by two holes." The man fled. In this man's case, I shall exclude the left eye from vision, if I can get him out of the hands of the operating rhinologists and the neurologists.

These untransparent corneas almost always cause eyestrain sometimes of a most grievous severity. I fear we greatly neglect to take this fact into consideration, and dismiss without explanations to the patient, and sometimes without correction of the ametropia. In rare cases, possibly the ametropic correction may not, especially at first, give relief; it may more rarely even increase the eyestrain, by stimulating the waning and fading effort and possibility of helpful and useful fusion which must be finally renounced. The problem then becomes most complex and perplexing, and demands the highest judgment and skill to meet it. But purposely to exclude an eye from vision under such circumstances is a hazardous procedure, and needs long pondering. I have not, I think, been compelled to do so more than once, while final success has generally followed ingenuity and persistence to save. I have had one most instructive case which astonishingly proved the wisdom of *nil desperandum.* It was that of a man nearly frozen to death. The keratitis had produced such a dense leukoma, and apparently ruined eyeball that several good oculists advised enucleation, fearing sympathetic inflammation of the other imperfect, but still functional eye. Enucleation was not allowed, and later the better fellow was utterly ruined, and now with the eye pronounced doomed, the man has 20/40 vision and lives a useful life.

Incurable eyestrain is a necessary result of conical cornea.

The adherent irises following neglected or badly treated iritis are often sad evidences of professional ignorance and lack of skill. If occlusion of the pupil is added, not much is left except despair, and "making the best of it." I judge that an artificial pupil generally only adds to the misery. In such cases hope of cure being renounced, the choice may lie between *laissez-faire,* or hastening the exclusion of the eye, or of the cortical center, from participation in vision. But, first, there should be a desperate attempt at ametropic correction, for, with it, nature may keep up the struggle with less pain, and with less eyestrain; even a small degree of vision preserved in one eye, avoids the danger of blows, injuries, etc., upon the blind side of the head. Rents at the corneal border of the iris, causing double pupil, etc., inevitably produce eyestrain until nature excludes the eye from visual influence. Should tattooing sometimes be tried before it is too late? I have one patient with traumatic rupture of the iris, the pupilary edge being attached to the cornea. There is also an undiagnosable irregular astigmatism. The eye is too good to exclude from vision, and the patient's symptoms are not those of traction on the adherent iris; they are due to eyestrain, but I can not relieve them. For ten years I treated a patient, one of whose eyes had been ruined by a faulty operation. There were three artificial pupils. I had to exclude the eye from vision until the sensation was dulled and denied.

Cicatrices in or near the cornea from wounds, injuries, and operations, and producing irregular astigmatism, not seldom as we all know, cause eyestrain.

Bungling operations on the lids, entropion, ectropion, etc., have also an influence in making the visual act harder to carry out. One of my patients had a fistulous opening on the cheek through which the tears trickled all her life. It was made by a great surgeon twenty-five years ago in an attempt to open the tear-duct in dacryocystitis. She had had enough of operations, and would not dream of more. "Weeping eyes" suffused with tears are somewhat common, with eyestrain as an inevitable result.

There is in my mind little doubt that the chief cause of senile cataract is uncorrected or miscorrected ametropia. In eyes previously long and properly glassed it does not occur. We all know how incipient cataract often increases eyestrain and necessitates frequent changes in refraction. "The headache of incipient cataract" has become a familiar term. If the cataract is monocular and is advancing, I think it generally advisable to exclude the eye somewhat early. Usually the earliest stages do not affect the center of the pupilary area. When the clear space chosen for vision is at one side of the pupil, eyestrain inevitably follows from the effort to get the macula in line with it.

I have had cases in which vitreous opacities seemed to cause or increase eyestrain. They oftener cause the patient great worry and quacks make much money out of them. Muscæ volitantes do not cause eyestrain, if they

are really physiologic, as properly speaking they generally are. One has constantly to calm the fears of patients in reference to them.

Ametropic choroidoretinitis[2] is very common, indeed, almost always exists in long uncorrected ametropia. It is a perfect example of the "vicious circle" of disease, for it is the result of eyestrain, the local effect, and at once it becomes the cause of further eyestrain, both local and general.

Other forms of choroiditis, and of retinochoroiditis, do not usually produce eyestrain unless the macula region is implicated, and unless it has ended in floating vitreous opacities. If one macula is destroyed or badly injured, eyestrain is inevitable until the eye is dulled to functionlessness. If both eyes are affected, the eyestrain must be persistent. I had a patient with both maculas so equally and irremediably hurt that new maculas had formed above the old ones. I sent him to live on a Western ranch, where he is happy.

Tenotomomania usually results in incurable eyestrain. After the muscle-tailor has done his work there is not much we can do, except to apply the proper glasses and wait for Nature's possible undoing of the injury through years of suffering. I remember one patient who had no phorias whatever after twenty-eight tenotomies by one graduate tenotomist. The machinery of head and body was largely devoted to getting his head in position to see every degree of change of image. His ocular muscles had been surgically paralyzed.

4. *Amblyopia, or other Injury of Ametropia.*—I have elsewhere published a study of "Amblyopiatrics," or the cure of amblyopia, when it is curable. The majority of patients have some degree of ametropic choroidoretinitis or amblyopia from eyestrain, and the majority of these are entirely curable. In extreme cases it is not curable.

The eyestrain of incurable amblyopia usually depends on the amount of near work done. A young lady patient of mine with 20/40 vision from old uncorrected astigmatism was free from symptoms in her home, but when she went to college there was great suffering. In childhood, in a very few years, strabismus will often render the eye visually useless, even though made cosmetically useful by surgical operation. I had one patient with what I called squint hemianopsia, the temporal half, vertically, of the retina being wholly blind. One may never be sure how much the amblyopia from disuse which follows the eyestrain exclusion of an eye from visual function is due to retinal or cortical causes. And one can also never be sure that the worst cases may not be improved by long and patient amblyopiatric methods.

Some years ago a European physician found a couple of children supposably blind in a blind asylum, who still had some perception of light. He educated this remnant of function, first, in distinctions of light; second, of color; and third, of form, until the children were taught to read and were rescued from a life of blindness. A blind patient over 50 years old has been suddenly brought to perfect physical and sensational vision by operation, but it took some years to perfect intellectual vision. The lesson in all cases of amblyopia is that we should trust Nature and help her by ingenuity and patience to improve amblyopia, and to renounce only when the impossible is demonstrated. I have had but one case in which I had to exclude the eye from vision, because the little improvement possible was a little improvement, and was not further improvable. The influence of dextrocularity in conjunction, of course, with dextromanuality will usually result in the retention of better visual acuity in the right, even with greater ametropia in the right. Nature will always aid more to save the right-eye vision than the left in the dextral.

Accommodationlessness, that is, undeveloped accommodation, may be a result of chronic exclusion of one eye from function for near work, caused, of course, by ametropia. I have had at least three patients whose ametropia was such that one eye was used for near only, and the other only for distance. The latter eye had no accommodational power. If caught early enough in life the defect may be remedied by bifocal lenses. If the patient has passed adolescence, such a device will scarcely prove successful, and the established habit must be permitted to continue; but some eyestrain will also persist. The least intermixture of astigmatism will demand glasses, e. g.,

R. — S. 2.50 — C. 0.50 ax. 50°
L. — Cyl. 0.25 ax. 140°

and fusion will come at once.

Subnormal accommodation[3] is far more frequent than is supposed, and its existence has been a prolific source of many of our past failures to relieve eyestrain. We must be on our watch for it in every patient. None of my successes have been more brilliant or satisfying both to patient and oculist than the half hundred in the past few years, by attention to this most important condition. I now have a child of nine, and another of twelve, wearing bifocal lenses with admirable results. I have found a few cases in which the subnormality differs in the two eyes.

Only the best conscience and the most expert intellect may rightly decide when to persist in stimulating or coaxing an amblyopic eye into use, and when to exclude it.

5. *Heterophoria.*—This cause of eyestrain appears to me refractional in origin and innervational in mechanism, but when it is too high, or of too long standing, it may produce eyestrain, either because too great injury has been done, or because reinstatement of orthophoria is impossible. Preventable all such conditions are, but I have not seen tenotomy of service. In the young if orthophoria is possible, by operation, it is possible by means of glasses, orthoptic exercises, etc. And without proper glasses no operation is useful, because it was the ametropia that produced the heterophoria.

Strabismus has the same law with the exception that its genesis is in childhood, is quickly established, and the irreparable injury sooner completed. With strabismus fixed eyestrain ceases, because Nature has despaired of help, and has renounced effort. Heterophoria is the cry of the dying eye for help; heterotropia is its epitaph. The strabismic death may sometimes be only resignation and coma, and resuscitation still be possible. Undoubtedly we frequently give up the struggle too quickly. But it is murder to delay intervention, as I was taught, until the child should be 7 years old. Such ophthalmology should be put on trial for murder in the second degree. I have cured strabismus by glasses alone in patients over 30 years of age.

In those patients reaching us over 40 to 50 years of age, with high heterophoria, would it be wise to advise operation? I hardly think so. One of the best illustrative cases I have was that of a woman who had 33° of esophoria. I should have lost my patient if I had demanded operation. I incorporated with her ametropic correction 13° prisms in each eye for distance, and 7° for near, and she has never for years had enough dis-

2. See Archives of Ophthalmology, 1890.

3. See Am. Med., Jan. 21, 1905.

comfort to make her think of operation. By a marvel of the optician's art her lenses are not very heavy or unsightly.

6. Interruptions or Contradictions of the Normal Coördination of Dextrocularity and Dextromanuality.—When traumatism, inflammation or other cause conflicts with or extinguishes the established coördination of dextrocularity and dextromanuality so that the left eye (in the dextral) must take up the proper dextral function of the right, eyestrain, at least for a time, almost inevitably results. There is an awkwardness, indecision, slowness, etc., of action, thought or vision, probably of all three, which may be more or less lasting. I have had a number of such cases, but the particulars are too numerous to find room here.

7. Cerebral or Nerve Disease Occasionally Causes Eyestrain.—Paralysis of accommodation, not from peripheral causes, but from cerebral ones, may exist, overlooked, in one or both eyes. Some eyestrain will still exist even with bifocal lenses. Failure of detection may be caused by the cycloplegia and may be present without a noticeable mydriasis. I have had a number of such cases.

Permanent myosis may cause incurable eyestrain because of evident optical reasons. I had one such case in which a famous neurologist could find no evidence of neurologic disease to account for it, and we both failed to bring about any alleviation of the symptoms patently eyestrain in nature. I had a theory that the myosis in this man's case was due to a tiny corneal opacity in the center of the pupil. My neurologic friend scorned such a philosophy.

Slight nystagmus, with small and almost undetectable excursions, flutterings, or tremblings, may, as will be readily understood, produce eyestrain. In one patient, a woman of 50, there was the most rare symptom of rotary nystagmus, which no glasses could cure. And I have had one case of monocular nystagmus that to some degree caused incurable eyestrain, although the young man had only 3/200 vision in the affected eye. Possibly the diplopia of paralytic strabismus may not be properly classed as eyestrain, and yet in one sense it is so. I have had to put two such eyes out of function by a steamed or ground glass, so slightly obscure as not to attract attention, and which at the same time would not allow vision.

There is no evidence that color blindness may cooperate in producing eyestrain, but it is possible that it may do so. Certainly in the beginning stages of optic atrophy there would probably be such an effect. I have reported a remarkable instance of hereditary optic atrophy occurring only in males, transmitted only by females, taking place from 28 to 34 years of age, and running through six generations. While the disease was in its early stages and ingravescent, one of these patients had decided eyestrain symptoms, not to be relieved by any means, of course.

I have had several patients in whom tremor of the head was a source of eyestrain.

I recently discovered one of the most unsuspected ways in which a disease of the central nervous system may produce eyestrain. I have no doubt that my little report is so far unique. My glasses had failed, in part, to relieve in a woman of 40 the symptoms of decided eyestrain in reading, not in writing. There was no subnormality of accommodation or other discoverable cause of the perplexing fact, until I noticed that her hands had a rapid and constant tremor. I placed her newspaper or magazine against a solid body, or in a book-rest, and the shivering was stopped, which caused ocular tiring.

8. Disease of the General System.—This condition, affecting directly or indirectly the nutrition or functions of the eye, may sometimes have some effect in causing eyestrain. This factor has been so ludicrously overemphasized in the past that it needs no more than mention here. Many "conservatives" who care nothing for scientific refraction problems have practically thrown the baby away with the bath, and have really sought to resolve all eyestrain into systemic disease. Although 99/100 of their contention is ludicrously untrue, there is, nevertheless, a possible 1/100 of truth in it. Although diseases of the nose and accessory organs may rarely affect the eyes, the rhinologist, and surely the operative rhinologist will have little work to do when the enormous influence of eyestrain on the nose is recognized. Much the same may be said of the gynecologist, the celiotomist, the gastrologist, and even the general physician.

9. Eyestrain Due to Unhygienic Occupation, Use, or Abuse of the Eyes.—In our offices we have constant evidence of these causes. Most of these cases are obviable or remediable, and their consideration goes over into the chapter on hygiene of the eye. This is indeed a chapter which, speaking resolutely, still remains unwritten, and which, when written, will not become popular reading for a century. During this waiting-time millions of eyes will be ruined, and vast reserves of health foolishly wasted. But in a minority of cases we find ourselves unable to prevent eyestrain, so plainly present. I have often run across the prejudice of employers, school trustees, and especially of railroad officials, against spectacles, even though the employé suffer and the lives of trainloads of people are jeopardized. The trainmen or switchmen say that the superintendent will probably "lay them off" as too old, whether presbyopic or not, if they show themselves in glasses. We should manage to convince the officials of the double folly of their ways.

Half of the clerks, stenographers, bookkeepers, etc., are compelled to carry on their work with poor lights, wrongly placed lights, etc., and when the lighting of their desks is good, the employé himself omits many other wise measures preventing eyestrain. Our school desks and commercial desks are universally flat, but when ophthalmology becomes ophthalmologic, and when civilization becomes civilized, they will be made sharply pitched. The unphysiologic, unophthalmologic, outrageously stupid writing posture of the occidental world begets a big deal of eyestrain, and most of the lateral spinal curvature which curses 27 per cent. of our school children. That we look sharply downward on our writing, etc., instead of off, from, and slightly downward, that we pathogenically angle our paper, are other sources of eyestrain, which we shall long and vainly struggle to change.

There are many other occupations which variously contribute to the conditions of eyestrain.

Lastly comes the fact on which is based the whole theory of the origin of eyestrain, namely, the impossibility of the long and continuous innervation and contraction of any single muscle or set of muscles in the human body. Rhythm is the law of life, and surely of muscular contractility. The modern human eye is often put to tasks which it is incapable of carrying out. Normalized accommodation (that is, accommodation without any ametropic morbidizing), is in fact always subnormal, when it is required to be executed with scarcely a break

or change for hours, almost a whole day, and for all days of the year and life. Nature never made the eye for such work, and has not outfitted it with an adequate mechanism.

DISCUSSION.

DR. PETER A. CALLAN, New York, said that while Dr. Gould emphasizes the effect of glasses, the use of atropin and the shutting out of one eye, he totally ignores the operative side. Dr. Callan does not think that ophthalmology consists alone in the fitting of glasses; it is something broader than that. He said that when Dr. Gould spoke of the treatment of congenital cataract by the use of atropin he probably meant lenticular pigment spots in the area of the pupil and not the kind of congenital cataract which is generally spoken of as such in which the anterior posterior pole of the lens is affected. Dr. Callan said that it would have been better to consider the best means of treating these cases surgically. Dr. Callan thinks that the mistreatment of iritis in the hands of most men is due to the patient not carrying out instructions. Many times he has been obliged to insist that patients go to the hospital in order that the treatment be properly carried out. Dr. Callan mentioned Dr. Gould's reference to an operation for occlusion of the pupil and said that if Dr. Gould means total occlusion of the pupil it is the imperative duty of the physician to operate. Last year Dr. Callan saw a child of 10, with pupils occluded, who was being educated in an asylum for the blind. He performed an iridectomy and the child is now pursuing its studies in the proper way. He said that Dr. Gould may be right in saying that these patients can not be treated by glasses, but that is no reason for subjecting them to life-long misery when operative measures may give relief.

Dr. Callan declared that one might as well claim to prevent gray hair by the use of glasses as to prevent cataract. If one lives long enough there will be haziness of the nucleus, and, though patients are fitted with the best possible correction, they will eventually develop cataract, and it can not be prevented.

He said that no one appreciates more than he does the good that Dr. Gould is doing in his ophthalmologic writings, but for a teacher to cast slurs on the medical profession and to ignore, as he does, the benefits of operative procedure, Dr. Callan thinks is uncalled for.

DR. LOUIS BORSCH, Philadelphia, referred to Dr. Gould's ninth cause of eyestrain due to use or abuse of the eyes, in which he cites cases of patients straining their eyes by not wearing glasses, because glasses make them look old, and said that there are many more people who abstain from wearing glasses and thus fatigue their eyes than one would at first be inclined to suppose; especially is this true when the oculist prescribes bifocals, for bifocals are popularly supposed to mark a person's age. Dr. Borsch said that when glasses or bifocals are not worn when required, eyestrain results. On the other hand, very often when they are worn strain results that is just as severe, and this is due to the improper construction of these lenses, as most of them are unsatisfactory. For some years he has been endeavoring to devise a lens which would embody all the desirable features of a bifocal from the oculist's, the optician's and the wearer's point of view. These desirable features are as follows: (1) A bifocal lens having the least perceptible line of junction between the near and far portions of the lens; (2) having no prismatic displacement; (3) having no cement to become loose or cloudy; (4) having the optical and geometric centers corresponding with each other; (5) what is of no little importance, a lens that can be made by any lens grinder and at so modest a cost as to be within the means of any one requiring bifocals to gain a livelihood; (6) a bifocal that won't make the wearer look old.

This he has successfully accomplished, and he exhibited this new bifocal, which consists of two pieces of optical glass of different indices of refraction welded together in an electric furnace, thus making a solid piece of glass.

DR. GEORGE M. GOULD, Philadelphia, said, in reference to improperly treated iritis, that we all know that 75 per cent. of the cases are not treated by ophthalmologists. It is a great mistake to think of the profession as consisting of a few excellent ophthalmologists in the cities. A great number of the patients are not seen in the cities, and even there how many cases of iritis get into the hands of the oculist? In regard to the cause of cataract he said that Dr. Risley has long contended that it is due to choroidal disease, and Dr. Gould contends that choroidal disease may be due to eyestrain. He has never seen a patient who had worn proper glasses develop cataract. He does not ignore operations at all. When they are indicated and required, of course, they are to be performed. His remarks referred to cases in which operations are not indicated. As to maligning the profession, that is "tommyrot." It is the patient who must be cared for without regard to injury to our special or professional pride.

AN ANTISEPTIC TREATMENT OF TUBERCULOSIS.

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In the treatment of tuberculosis we have to deal with tubercle bacilli, on the one hand, and the human being on the other. The quantity of powerful drugs daily taken by those unfortunates who have acquired the drug habit demonstrates the power of the human organism to accommodate itself gradually to changed conditions. It appears reasonable to suppose that if powerful poisons, such as chloral, cocain, arsenic, morphin, etc., can be tolerated by the human subject in gigantic quantities, then a like tolerance can be created for certain other drugs of less toxic influence, but possessed of bactericidal properties.

Through a tolerance thus acquired it may be possible to administer such germicidal substances in quantities sufficient to inhibit, damage, or even destroy pathogenic bacteria, such as tubercle bacilli, within the body, and to do this without injury to the human body. This hypothesis presupposes the lack of a similar or at least equal tolerance acquired by the bacteria under these circumstances.

TUBERCLE BACILLUS AND GERMICIDAL AGENTS.

The tubercle bacillus is restricted within a comparatively narrow range of environmental conditions for its growth and other vital activities. Many low forms of vegetable life do not possess an accommodative power equal in degree to that of the higher forms of animal life. In general the human body does not offer favorable conditions for the multiplication and pathogenic activities of the tubercle bacillus, and when such conditions of the human body exist they can by proper measures often be rendered unfavorable for the bacillus. The tubercle bacillus is sensitive to the addition of even small quantities of antiseptic substances to media otherwise favorable for its cultivation, and we have no experimental proof that through the gradual addition of increasing quantities of an antiseptic the bacillus can acquire a tolerance of the toxic effects analogous to that acquired by a human being to certain drugs. When placed in a culture tube under suitable surroundings, and a sufficient quantity of a given antiseptic is added, destruction of the tubercle bacilli results. It matters not how gradually the antiseptic is added; it is only requisite to introduce a certain fixed amount to accomplish the death of the bacilli.

By the judicious introduction into the human system of certain antiseptics proved to be destructive of the tubercle bacillus, great quantities may be ingested without apparent injury to the human tissues, and, it would seem, enough to injure, if not to destroy, the tubercle

bacilli. This result is probably attained not solely by the direct germicidal action of the antiseptics used, but also indirectly by the change in the environment of the bacilli and increased efficiency of the defensive forces of the body in combating the germs and their effects. If a patient afflicted with tuberculosis weighs 130 pounds, about one-thirteenth of this weight, or ten pounds, is blood. The introduction of seventy grains of an antiseptic into the circulation would result in a ratio of one part of the antiseptic to one thousand parts of fluid, a concentration fatal in the case of certain antiseptics to many bacteria.

While, of course, we must consider many other factors than the percentage of the antiseptic in the blood, such as its further diffusion in the lymph and tissues, its possible decomposition and rapid elimination, irregularities in its distribution in different parts, still, in view of such considerations as those stated, it does not seem to me to be so hopeless a matter, as is often assumed, to secure direct injury and probably actual destruction of tubercle bacilli within the body by the administration of suitable germicidal substances in requisite amounts, and this without harm to the cells of the host. We have, furthermore, the advantage of being aided by the leucocytes and other vital forces of the human body, and of the fact that the circulating and other fluids of the human body are not so suitable a culture medium for tubercle bacilli as the culture fluid of the laboratory test tube. If I have reasoned correctly, we have now arrived at the point of selecting the most suitable antiseptic or combination of antiseptics.

IODIN AND PHENOL.

We have reason to believe that iodin is a powerful antiseptic, and, in addition, promotes constructive metamorphosis under certain conditions which are usually present in tuberculosis. Iodin is absorbed in combination with alkalis and probably with proteids, and has long been used in the treatment of tuberculosis, although the mode of its action is not well understood. One of the most powerful and generally useful antiseptics, especially in the presence of albuminous material, is phenol, which, furthermore, lessens the irritative properties of iodin and permits administration of the latter in larger doses. In addition to its valuable effects on iodin, phenol, we find, possesses the property of destroying most organized ferments of animal and vegetable life. It is admitted that bacteria and moulds are readily deprived of their characteristic power by solutions of phenol, whilst chemical ferments (enzymes), such as pepsin and ptyalin, are much less readily affected. Some authorities claim that chemical fermentation is entirely prevented by strong solutions of phenol. However this may be, I have found that patients taking daily more than one dram of phenol gained weight for fourteen consecutive days. Hence, phenol under certain conditions also promotes constructive metabolism.

Phenol, like iodin, has irritating and caustic properties which can be materially lessened by proper dilution, and still further by the action of camphor, which is also an antiseptic, and which renders it possible to attain the maximum dose of phenol in the minimum time. Phenol passes through the tissues unchanged for the most part, although a certain part undergoes partial oxidation. The etherial sulphates in the urine are increased, while the ordinary inorganic sulphates are diminished and may disappear. The olive-green discoloration of the urine, familiar to those who misuse the drug, bears no definite relation to the amount of phenol in the blood, nor to the danger of poisoning. The discoloration may be produced by a small amount of phenol, while very much greater quantities make no change in the color of the urine.

By gradually increasing the dose, far greater quantities of carbolic acid may be given to advantage than the authorities would lead us to believe. It has recently come to my attention that as much as twelve to fourteen grains have been administered at a dose every two hours in the treatment of influenza by Wigglesworth, and of plague by I. M. Atkinson,[1] presumably from the start, but my own experience justifies the belief that much better results are obtained by beginning with smaller doses. There are a great many cases of tuberculosis in which such large doses can not be endured from the start, owing probably to functional inabilities of certain organs. It is the injudicious method of using the drug which is responsible for its evil effects.

For many years these drugs have been recommended in the treatment of tuberculosis with uniformly negative results, probably because they were not combined so as to deprive them of some of their evil effects, and consequently they were not pushed to the point essential to accomplish the desired results. In this connection it is interesting to note, in addition to the beneficial results reported by Wigglesworth and by Atkinson, the successful results obtained by Bacelli and Ascoli in the treatment of tetanus by phenol, and by Dr. Quill in the treatment of typhoid fever with a mixture containing phenol and spirits of chloroform.[2] Considerable misapprehension doubtless exists both as to the dosage and as to the toxicity of carbolic acid, a misapprehension based on the cases of poisoning resulting from its external use, or from its administration in too concentrated form. There are unquestionably individual idiosyncracies as regards susceptibility to carbolic acid, but I agree with the authorities cited in the opinion that in proper combination and in proper dilution carbolic acid may be taken internally in far larger doses than have been customary. I furthermore, believe that a measure of tolerance may be established by gradually increased doses.

DOSAGE.

The doses essential to accomplish the desired results are in conflict with the teachings of recognized authorities, but the results obtained demonstrate the value of the deviation from the accepted teachings. From what some might consider undue quantities, observations failed to reveal any derangement or morbid change in function or structure of any organ or tissue.

The formula which I have successfully used is as follows:

Phenol	m.	130	11
Spiritus of camphor	ʒ	3½	14
Tincture of iodin	m.	160	11
Glycerin C. P.	ʒ	ss	15
Cherry laurel water			
Chloroform water			
Cinnamon water			
Tar water, of each enough to make	ʒ	15	450

Mix and allow to stand until all free iodin disappears, then make an emulsion by adding one ounce, each, of cod liver oil and powdered acacia. Begin by giving one teaspoonful in a half cup of water every four hours, and gradually increase the dose to a tablespoonful at intervals of one hour. Should it become necessary, a stronger solution may be substituted here, or the quantity may be

1. The Lancet, 1899, vol. i, p. 958; also 1899, vol. ii, p. 1589, and 1903, vol. ii, p. 754.
2. Potter's Materia Medica, Pharmacy and Therapeutics, tenth edition, p. 381.

further increased, depending on the weight and tolerance of the patient. Technic plays an important part in the management of each individual case.

MODE OF ACTION.

As to the precise mode of action of each of the principal ingredients of the foregoing formula, it would be unwarrantable to make too positive statements. I incline to the opinion that there is a combination of direct antiseptic action on the bacilli with a favorable influence, exerted particularly by the iodin and the camphor, on phagocytosis and other protective agencies of the living body. The leucocytes are increased in number, and the symptoms indicate neutralization of toxins or cessation of their formation. An interesting phenomenon is the darker staining of the tubercle bacilli by carbolic fuchsin in the sputum of patients under this treatment.

I reserve for another occasion the detailed report of the results of the treatment, but these results as regards disappearance of the bacilli and increase in weight of the patient, and in a number of instances of even advanced pulmonary tuberculosis as regards apparent arrest of the disease and restoration to health have been so favorable that I desire to place in the hands of the medical profession the opportunity to make trial of the treatment.

While I have been led to the adoption of the treatment partly by hypothetical considerations, which I have set forth, of course, the essential test of its value must rest on facts accumulated by experience, independently of the correctness or error of the hypothesis.

NASAL DISEASE AND NEURALGIA.*

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The intimate relation existing between headache, migraine and neuralgia at times renders the differentiation of one from another of considerable difficulty, but as it is desired to consider only the latter in relation to nasal disease one must clearly appreciate what is meant by this term.

A comprehensive definition is: "Neuralgia is pain in a nerve or nerves, or radiating along the course of a nerve, of a severe, darting or throbbing character, intermittent, with sensitiveness of the skin and tender points where the cutaneous branches are given off from the deeper parts."

As with headache, the nose is a frequent and yet unrecognized cause of many cases of trifacial neuralgia, and, while it is not desired to imply that nasal and accessory sinus diseases are the most frequent factors in its production, yet they play an important rôle. Hence in all such cases of neuralgia these parts should be carefully examined, a procedure which, unfortunately, is rather the exception than the rule.

As both the nasal interior and its accessory sinuses are supplied with sensation by the trifacial nerve and its branches, and as this nerve is more frequently the seat of neuralgia than all other forms combined, it is evident that affections of these structures should not only involve some branches of the nerve reflexity, but, still more important, directly, and this occurs in many cases of trifacial neuralgia when no apparent cause is evident, because these structures are not investigated or are entirely neglected. Corroborative evidence of this is shown in cases in which, after operation in the nasal interior, neuralgic pains are observed along various filaments of the superior maxillary branches of the trifacial nerve, radiating into the teeth of the upper jaw and through the mucous membrane of the buccal surfaces. In common with neuralgia from any cause, that form resulting from disease of the nasal chambers, shows periodic variations in its intensity, in many instances being influenced by pressure between adjacent tissues, but there is usually no definite relation between the focus of disease and the seat of pain, it being not uncommon to find neuralgia in various portions of the head in cases of the same affection, in some instances the pain being on the side opposite to the nasal lesion.

The seat of pain in the individual case is practically constant, and unless additional tissues become involved in the morbid process it is unusual to find the original neuralgia changing its position, but in severe cases one finds, when a main branch of the nerve is involved, that the pain extends in a greater or less degree to other branches. While facial neuralgia frequently results from various nasal affections, but irrespective of the particular nerve which is the seat of the neuralgic process, the type differs in no way from that produced by other causes, either in the nose or sinuses or elsewhere, and from this aspect the basal cause can not be differentiated without obtaining the added light afforded by further studies of the particular case.

Nasal neuralgia, *per se,* that is, neuralgia limited to the nasal structures, does not necessarily follow from disease here, but may be the result of changes in other regions, such as alterations in the Gasserian ganglion or the various nerve trunks emerging from it, when pain may be complained of in the nose in addition to supraorbital or temporal neuralgia. It is also essential to bear in mind that the nasal interior may be abnormal, yet the neuralgia be the result of changes distant from this region, as it has been shown that in primary trifacial neuralgia catarrhal alterations of the nasal mucous membrane are not infrequent as a secondary result; and if care be not exercised these alterations may be mistaken for the cause of the neuralgia and not properly interpreted as one of its results.

So far as the accessory sinuses are concerned, acute sinusitis, and less frequently chronic changes, are a frequent cause of neuralgia and often the excessive pain is considered both by the physician and by patient as the actual disease itself. The character of the pain not infrequently adding to this erroneous impression, as it may last for a week or more with partial intermissions, and then severe exacerbations, the former being ascribed to the analgesics prescribed, with later subsidence of the pain, often accompanied with a purulent nasal discharge, may lead to the correct interpretation of the cause as an attack of acute sinusitis and not, as was believed, an idiopathic neuralgia. In acute inflammation of the sinuses, neuralgia is a frequent symptom, especially supraorbital pain of a throbbing and pulsating character. This location of the neuralgia is the rule, while pain in other regions of the face and head is more or less exceptional. As a presumptive sign of sinus empyema, neuralgia should be given considerable credence, but at the same time it is a deceptive sign and a most irregular one, as it may or may not be present and is rarely localized by the patient with any degree of certainty, although when found in the region of any par-

* Read before the Kensington Branch of the Philadelphia County Medical Society, May 8, 1906.

ticular sinus, especially when palpation increases the pain, it may be a symptom of considerable value in detecting the original focus of the trouble.

NASAL NEURALGIA.

As a type of pure nasal neuralgia, the following case is illustrative:

CASE 1.—Mrs. I., aged 23, had left supraorbital neuralgia for four years, with severe attacks at intervals of from a week to ten days and often lasting for three days without relief.

After much treatment with no result, she came to me for nasal stenosis which had not been considered as bearing any relation to the neuralgia. The left inferior turbinate was hypertrophied and jammed against the septum and following removal of its inferior border, which was the only treatment adopted, the neuralgia disappeared as soon as the pressure was removed and has not returned in three years.

HYPERTROPHY OF THE TURBINATE.

Of all the affections involving the nasal chambers independently of sinusitis, hypertrophy of the turbinates, and especially of the middle, is the most frequent cause of neuralgia. Both supraorbital and facial neuralgia result from continued pressure of the middle turbinate against the septum, the former resulting from pressure on the nasal branches of the fifth nerve, which may be greatly enhanced if there is, in addition, sinus involvement. The pain of intranasal pressure may be referred to the eye, to the frontal region or to the nose itself, and occurs with hypertrophy of the posterior part of the inferior turbinate, with synechia or spurs of the septum of sufficient size to cause pressure against the opposite tissues. Neuralgia also occurs in acute rhinitis from excessive congestion and intranasal swelling, but more especially when the sinuses are coincidently involved, and then there may be hammering, piercing pains of the supraorbital region, often synchronous with the pulse beat. In the later stages of the same condition, when there is a purulent discharge with obstruction, and especially when deviation of the septum in its upper portion exists, transient neuralgic pains are not infrequent. Of the other conditions in which this symptom is sometimes a feature, hay fever and intumescent rhinitis require mention, as in the former neuralgic pains of the eyeballs, root of the nose and rarely of the occipital region are not infrequent when the attack is severe, while in intumescent rhinitis, hemicrania or neuralgia of the supraorbital, occipital or temporal regions is often part of the disease.

Slight irritation of the nose may produce a degree of nervous instability sufficient to cause severe neuralgia, yet in the majority of cases in which pressure is continued actual nerve changes are undoubtedly produced; the case reported by Lermoyez demonstrates this in a convincing manner. A myxomatous degeneration of the inferior turbinate was removed with the cold snare and galvanocautery, and this was followed in three months by free nasal respiration, but also with severe supraorbital neuralgia uninfluenced by drugs. The scar on the turbinal tissue was then removed, with permanent disappearance of the neuralgia, and microscopic examination showed that a nerve fiber engaged in the cicatrix was acting as the pathologic basis for the pain.

MAXILLARY SINUSITIS AND NEURALGIA.

As an example of neuralgia resulting from maxillary sinusitis, the following case is suggestive of nerve implication:

CASE 2.—Mrs. H., aged 32, had been operated on through the canine fossa of both sides for antral empyema, two years before she came under my observation. The anterior end of the inferior turbinates had been removed and free drainage of the sinuses was obtained by large openings into the external nasal wall of each side. For the past year she has suffered constantly from infraorbital and supraorbital neuralgia.

Examination eliminated other sinus involvement and pointed to nerve implication from necrosed bone in the maxillary sinus walls. This was verified by curetting the softened bone areas, so that following this the neuralgia was no longer a source of annoyance, although a mucopurulent discharge still persisted. A few months later neuralgia recurred on the left side and that sinus showed further caries of its walls, but no further measures have been taken to remove the diseased bone.

The incidence of neuralgia from the maxillary sinus is probably not so common as that from the frontal, although the nerves are more exposed in the former, but its physical conformation is such that pressure of retained morbid secretion is rather infrequent compared with similar conditions of the frontal sinus. Infraorbital, supraorbital and dental neuralgias are not unusual in acute and chronic maxillary sinusitis, and when present are of presumptive value in suggesting antral disease, frontal neuralgia being most common, but any severe facial pain should direct attention to this sinus. In acute inflammation, the pain is often mistaken for simple neuralgia, as it is apt to involve the teeth and to extend into the temple and is a common symptom. In chronic empyema of the maxillary sinus, however, neuralgia is not so frequent, but when present it may involve half of the head, like migraine, or intense pain may be complained of over the facial surface of the superior maxilla. It is often periodic in intensity, increasing in degree for several hours, then diminishing and frequently disappearing later in the day, to return again in the morning. In such instances the neuralgia is a direct symptom of nerve irritation from inflammation of the mucus lining of the sinus, the superior dental nerve running along its walls, and it is not infrequent to find the thin bony covering dehiscent in some areas, so that from the superficial position of these nerves the pain is referred to the nerve trunk and intense neuralgia may result. In some cases this may not be so severe, but there will be points of tenderness over the nerve and especially at the point of exit of the infraorbital nerve.

FRONTAL SINUSITIS AND NEURALGIA.

Acute inflammation of the frontal sinus is always accompanied with headache and not infrequently with severe neuralgia. The following case illustrates this feature:

CASE 3.—Miss N., aged 21, following an attack of acute coryza, developed violent right supraorbital neuralgia which was continuous and prevented her from sleeping.

She was seen after the neuralgia had lasted for three days and analgesics had failed to give relief. Examination showed acute right frontal sinusitis with retention of secretion and the slightest pressure over the supraorbital nerve caused exquisite pain. After reducing the swelling of the frontal canal with cocain and adrenalin, a profuse discharge ensued on this side and relief was immediate, the remaining tenderness over the sinus disappearing in a few days.

In all forms of frontal sinusitis, whether due to congestion of its mucous membrane accompanying acute rhinitis or resulting from pus retention of chronic empyema, supraorbital neuralgia of the affected side is frequently observed. It differs in no way from the frontal neuralgia found in many affections, as the pain may be paroxysmal, often periodic and extending toward the occiput; at times it annoys the patient only slightly, again it is excruciating, and the usual medicinal meas-

ures used for neuralgia are utterly without value. The pain may be bilateral, but it is more frequently one-sided, and there is tenderness to pressure over the exit of the supraorbital nerve and the lower anterior wall of the sinus. Often in chronic frontal sinusitis when unrecognized, the neuralgia may last for years with variable periods of freedom from pain, the condition usually being considered as one of simple supraorbital neuralgia. Infrequently the pain is in the occipital region, and then mistakes in diagnosis are still more apt to occur. The relation of the supraorbital nerve to the frontal sinus explains the frequency of neuralgia here, as its branches ramify over the anterior and inferior walls and the inflammation of the mucous lining involves the nerve trunk, while, when the sinuses are small, so that retained secretions are under pressure, it can readily be understood that neuralgia must be frequent.

ETHMOIDAL SINUSITIS AND NEURALGIA.

More often productive of headache, empyema of the ethmoid cells may be the exciting factor in occipital and frontal neuralgia, as the following case demonstrates:

CASE 4.—**Miss G., aged 20, had ethmoid suppuration on both sides, with enlargement of the middle turbinates and pressure against the septum. In addition to almost constant headache, attacks of occipital neuralgia occurred every week or so and incapacitated her for work, while frontal neuralgia was less frequent but unusually severe.**

Since removing the middle turbinates in part and curetting the necrosed ethmoid cells for an irregular period of over two years, no neuralgia has been present for three years, although a mucopurulent discharge is at times annoying.

Unrecognized ethmoid disease, with or without neuralgia, is usually treated as postnasal catarrh, or, when neuralgia is severe and frequent, it is often treated as the sole disease and not as a symptom of the causal affection. Supraorbital, occipital and basal neuralgia occur in many cases of ethmoid empyema in which pus is confined under pressure in the various cells of this region, while in open ethmoiditis without obstruction, pain is usually not complained of, or at the most headache may be present to some extent. While it is suggested that empyema of the middle and anterior group of cells produces facial and vertex neuralgia, and that of the posterior cells vertical and occipital pain, yet in the majority of cases this is far from the fact, as it may involve the root of the nose, the lower inner angle of the orbit, the frontal region and the upper part of the cheek, but as a rule the localization of neuralgia from ethmoiditis is vague and in no way characteristic. The basal type of headache or neuralgia should suggest an examination of these sinuses, for in some cases the pain is on a plane with the base of the skull, involving the back of the eyes, the mastoid and temporal regions and the occiput along the same level. In other cases, infrequently observed, there may be a point of tenderness externally between the nasal bone and the lateral cartilage, where the anterior ethmoidal nerve sends an external branch to the skin covering this region.

SPHENOIDAL SINUSITIS AND NEURALGIA.

The least recognized of all these affections are those of the sphenoid sinus, and while empyema here is accompanied with headache more frequently than with neuralgia, yet the latter may occur, as shown by the following case:

CASE 5.—**Mrs. M., aged 55, has had a postnasal discharge for twenty years and once or twice a month intense neuralgic pains over the entire head, originating from a center situated at the intersection of two lines, one horizontal from the base of the nose, the other vertical from the top of the head. Five years ago the anterior wall of the sphenoid sinus was opened and since then the discharge has materially lessened, while the neuralgia occurs about once in two months, the attacks being as severe as before.**

When I first saw her the trouble seemed to be entirely in the sphenoidal sinus and the opening had become obstructed so that retention of secretion caused the neuralgic attacks, while so long as the discharge was small in amount and there was no obstruction to its exit she was free from neuralgia.

In acute sphenoidal sinusitis, neuralgia may involve the frontal and occipital regions and produce intense agony, the pain also being complained of deep in the center of the head. In chronic empyema, however, while the pain may not be so severe, in some instances much suffering may be produced. Its location varies, but not infrequently the eyes are painful, the supraorbital nerve is involved or the pain may be over the vertex.

COMBINED SINUSITIS AND NEURALGIA.

The last case which I desire to mention illustrates a frequent condition, in which there is combined sinusitis and marked intranasal changes:

CASE 6.—**Miss R., aged 22, complained of a profuse mucopurulent nasal discharge and basal neuralgia, especially severe over the supraorbital regions. When the neuralgia was not present there was a dull headache. The middle and lower turbinates on both sides were swollen and jammed against the septum, while the ethmoid, sphenoid and frontal sinuses were involved, no evidence of antral disease being obtained. As the result of several months of treatment, the headache entirely ceased when the obstruction and pressure had been removed; the supraorbital neuralgia also disappeared and the attacks of basal neuralgia diminished both in frequency and severity. The ethmoid sinusitis which has not entirely disappeared under treatment causes occasional attacks of pain.**

The neuralgia observed in such instances is bizarre and exceedingly confusing, and one can never be certain of its relation to any particular changes in the nasal chambers or sinuses until the affected parts have been approximately restored to normal, the retained secretions evacuated and pressure between opposing points has been removed. When during acute coryza or grippe, especially, the location of the neuralgia apparently bears some relation to a particular sinus, one may take it, with many exceptions, however, as an indicator of involvement of that cavity, but on this alone the diagnosis of sinusitis can never be made with certainty, nor can the relation of cause and effect be disclosed without more certain corroborative evidence.

In frontal or sphenoidal sinusitis, persistent occipital neuralgia may be a marked feature, or in either of these, with pathologic alterations of the ethmoid cells, neuralgia localized in the supraorbital or infraorbital regions, with marked tenderness of the orbit, is not infrequent. It must also be borne in mind that in many cases of neuralgia in which there is intranasal or sinus disease it does not follow that the former is dependent on the latter, for no relations at all may exist between the two, but the neuralgia is the result of other causes, the nasal affection being a mere coincidence.

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Tuberculosis and Nephritis.—Chauffard has noted nephritis in about 9 per cent. of his tuberculous patients. The kidney may be in an amyloid condition or hematuria, albuminuria and casts may indicate acute nephritis. In his study of the subject, published in the *Jour. de Méd. et de Chir. Prat.*, for Nov. 10, 1905, he mentions that in one case the symptoms of nephritis first appeared under tuberculin treatment. Albuminuria followed each injection.

CEREBRAL DECOMPRESSION.

PALLIATIVE OPERATIONS IN THE TREATMENT OF TUMORS OF THE BRAIN, BASED ON THE OBSERVATION OF FOURTEEN CASES.

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AND
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(*Continued from page 683.*)

WHEN PALLIATIVE OPERATIONS ARE ADVISABLE.

After a careful study of these cases and of the views of the different authors, it will be seen that the weight of opinion is decidedly in favor of palliative operations. The choked disc, headache, vertigo, nausea, vomiting and, to some extent, the convulsions are all favorably influenced by this method of treatment. Relief from these distressing symptoms is by no means to be despised, even though the tumor is not removable. The relief from many of these symptoms is often permanent, i. e., during the period the patient may continue to live, and, as the growth of the tumor is not hastened by the palliative operation and may be slow, we are thankful for a means of removing the distressing symptoms of intense intracranial pressure.

My first case of palliative operation was in 1898, and the operation was performed by Dr. John B. Roberts. The marked improvement that occurred in that case and persisted at least during several years and until the patient passed from our observation convinced me of the benefit to be derived from palliative operations (Case 2 of our series).

In one of our cases (Case 10) headache was so severe that relief was demanded at once. Byrom Bramwell, as already mentioned, has attributed sudden death in some cases of brain tumor to the severity of the headache and sudden inhibition of the action of the heart. The patient to whom I refer suffered such intense pain that he could not be reasoned with and was not responsible for his acts. Occasionally, in his attacks of pain, he grabbed any one who might come within his reach and once bit his mother through the arm. The relief afforded in this case by a palliative operation has been most striking. Indeed, his relief from the previously constant pain has been so great that, as he expresses it, he is "lonesome without his headache."

In another case (Case 11) headache has been the symptom that above all others demanded treatment, and the pain in the head was associated with pain in the neck, shooting down into the upper limbs. The symptom-complex has been in large degree that of cerebellar tumor, but the pain shooting into the upper limbs has made me fear that the tumor was extending downward through the foramen magnum on the cord. Some years ago I had a case of this kind, and at the necropsy a flat tumor was found covering a part of the pons, extending into the posterior part of the fourth ventricle and growing down on the cord for several inches. In that case the development of the symptoms in the upper and lower limbs was more rapid than in the present instance, and, therefore, I feel that the tumor in the latter case may be confined to the region of the cerebellum. If so, I have no explanation for the pain in the upper limbs. The decrease of this pain, together with the decrease of the headache after the dura was opened at the second operation, gives me reason to believe that probably this pain of the limbs was indirectly caused by the cerebellar tumor. Headache and pain still occur occasionally, but the condition of the patient has been vastly improved by the removal of a piece of bone and by opening the dura over the cerebellum.

I am somewhat skeptical as regards disappearance of Jacksonian convulsions after merely opening the skull and dura if the convulsions are very frequent.

In one of my cases in which the brain was exposed by Dr. Edward Martin, and which will be reported by Dr. Martin and myself later, the tumor could not be found at the time of operation. The man was having five or six Jacksonian convulsions within an hour, and relief of intracranial pressure did not in any way check them. He died from exhaustion following the numerous convulsive seizures on the second day after the operation. After death a minute tumor was found nearly in the center of the area exposed, but a little subcortical.

In a still more recent case under my care, in which fracture of the skull and subdural hemorrhage had occurred, trephining probably prolonged life about 24 hours, but did not in any way check the Jacksonian convulsions which before the operation were as frequent as six or seven within an hour, and continued in weakened intensity but with equal frequency after the operation. Opening the skull does not seem to relieve acute irritation of the brain, but it is of benefit in chronic cases, as not rarely convulsions occurring infrequently have been rendered less severe by this procedure.

I have considered whether palliative operations can obscure focal symptoms. Bruns thinks they can not, but the subject is one that has important bearings. It is probable that a small tumor will cause more local disturbance if the general intracranial pressure is increased, not only because the local disturbance is added to the general pressure, but also because any one part of the brain is more irritable when the disturbance of the brain is general. This, however, is not sufficiently important to prevent palliative operation, and I would advise that this should be done before the general symptoms become very intense, and especially before optic neuritis has developed so far that blindness is likely to result. The apparent unanimity of opinion as regards the effect on choked discs of opening the skull makes the necessity of this operation at an early period very evident.

It is a mistake to regard palliative operations as a substitute for radical operations. The tumor should be removed whenever this is possible, and palliative measures are to be considered only when the tumor can not be located, or is too large for removal, or possibly is a glioma. Palliative operations only relieve, except in extraordinary cases such as those reported by Horsley. Codman's views that palliative operations are preferable to radical operations I can not share, and would add that the argument he offers is insufficient, viz., that the former are less dangerous in the hands of inexperienced surgeons. No surgeon who has had little experience in operating on the brain should attempt the removal of a brain tumor, and before advising the attempted removal of a brain tumor I always inquire who is to perform the operation.

The experience of Horsley as regards atrophy of tumors as a result of palliative operations seems to be unique; at least I have found no other similar cases, nor have I ever seen any such result in any of our cases. Broca and Maubrac doubted whether Horsley was correct in believing that partial ablation of a tumor may retard the growth of the rest; but Horsley has observed

atrophy of a tumor following a simple opening of the skull and dura. This is a striking statement. I have never seen arrest in the growth of a tumor following the removal of a part, but several times I have seen increase of symptoms result, and I dread the partial removal of a growth, especially if it is a glioma. It has seemed to me that the congestion of the tumor and of the surrounding tissue and the greater space afforded for the growth of the tumor, after partial removal, favor the rapid growth of the remaining portion. I am almost convinced that it is better to leave a tumor untouched if only a part can be removed, especially if the growth is a glioma. The attempt, I think, should never be made to remove a glioma, and yet there seems to be no way to determine before operation that the tumor is a glioma. A patient has been under our care with the diagnosis of brain tumor and was operated on several times by Dr. Frazier. Each time as much of the tumor as could be seen was removed, and yet a return of the symptoms occurred soon after each operation, and when a necropsy was obtained the tumor (a glioma) was found to extend from the upper to the lower surface of one cerebral hemisphere.

I doubt whether it can be held that a palliative operation, by which the tumor is not partially removed, by relieving pressure, favors the growth of an intracranial tumor. Unquestionably the brain has protruded through the opening, as in the cases of Schlesinger, Frazier, and Cushing, but it seems a questionable proceeding to excise the protruding portion. The tumor has grown through the opening and on the outside of the skull (Jolly, Wiener, Putnam and others). In Jolly's case it formed an extracranial mass nearly as large as the man's head. It seems unquestionable that life was prolonged in this case by the operation, although it is doubtful if life under such circumstances is worth having. In Jolly's[33] case the clinical signs extended over a period of thirteen years. In the case that Dr. Martin and I observed, to which reference has been made, the symptoms of brain tumor had existed for eight years.

We have had some extraordinary cases in which the symptoms of brain tumor disappeared entirely or almost entirely after an opening had been made in the skull and dura. Such, for example, are the case observed by Dr. John B. Roberts and myself in 1898 and Cases 4, 5, 6, 9, 10 of our series. It may be thought that the growth of the tumor is arrested by the operation; this is possible, but doubtful. Internal hydrocephalus (meningitis serosa) or some other lesion may give the symptoms of brain tumor, and relief of intracranial pressure may cause great modification or disappearance of the symptoms. In some cases in which relief has followed palliative operations probably an incorrect diagnosis has been made; in others, the relief of pressure has permitted the tumor to grow slowly without causing many symptoms.

My views as a result of my experience and of a study of the literature are:

1. Palliative operations should be performed early in every case in which symptoms of brain tumor are pronounced and before optic neuritis has advanced far, especially where syphilis is improbable, or antisyphilitic treatment has been employed.

2. Partial removal of a tumor, especially of a glioma, is a questionable procedure.

3. Palliative operation does not cause atrophy of a brain tumor and probably does not arrest its growth; on the other hand, it probably does not hasten its growth.

4. Palliative operation is not to take the place of a radical operation when the latter can be performed without great risk to the patient.

5. In some cases the symptoms of brain tumor disappear almost entirely for a long time or permanently after a palliative operation. This result is obtained either by relief of intracranial pressure or by removal of some lesion (meningitis serosa, etc.) other than brain tumor, and yet causing the symptoms of tumor.

33. Jolly: Berl. klin. Wochft., July 17, 1899, p. 636.

REMARKS BY DR. FRAZIER.

The question as to whether a palliative or radical operation is indicated may be determined by answering the question as to whether the tumor is operable or not. The operability of brain tumors has frequently been discussed and the facts and figures which have been presented to us have been based almost exclusively on the autopsy records and not on the finding at the time the operation was performed. The autopsy records may help to determine the percentage of operable tumors in so far as it reveals the nature of the tumor and may be able to fix on its point of origin. The very vascular infiltrating sarcomata should be classed with the inoperable tumors, for I believe the expectation of life and the enjoyment of that much of life which remains to the patient would be greater in the majority of cases after a palliative operation. On the other hand, the fibroma, or the somewhat defined fibrosarcoma and the gumma of limited dimensions should be classified as of the operable group. The size of the tumor as revealed at the autopsy has no practical bearing at all on the problem; the size of the tumor at the time the symptoms first made a diagnosis possible should only be considered. There are some tumors of such large proportion as to make any attempt at removal inadvisable, but, on the other hand, tumors of very small dimensions may lead to a fatal termination.

If it were possible to ascertain the point from which the tumor took its origin we should have some valuable statistics as to the operability of tumors. The farther away the tumor is from the cortex or the nearer it is to the base of the brain the more it approaches the field of inoperable growths. If the statistics are to be of much value to the surgeon they should be based on the records which are made on the operating table or at the autopsy, if the patient dies as a result of operation, only in those cases in which the patient has been brought to the surgeon comparatively early in the course of the disease. One might as well prepare a table and compile statistics as to the operability of carcinoma of the stomach based on the autopsy records of patients who died in the most advanced stages of the disease, when the lymphatic nodes far beyond the primary lesion have been invaded and the tumor is no longer confined to the stomach, but has invaded other organs adjacent to it. The question as to what percentage of tumors of the stomach may be removed must be and is being determined in the very earliest stages and on the operating table. So with tumors of the brain, the greater the number of cases brought to the surgeon in the earliest recognizable stage of the disease the sooner will we be able to say with some degree of accuracy in what percentage of cases there is a reasonable hope of being able to perform a radical operation.

There are two classes of cases in which a decompressive operation may be required. One in which there is

reason to believe the tumor can not be removed in its entirety and the other in which the tumor can not be localized and yet the possible loss of vision, the intense headache and distressing vomiting almost demand the immediate adoption of some measure of relief. Cases of tumors of the cerebrum in which localization is impossible are rather the exception, although in cerebellar lesions it not infrequently happens that the tumor can not be localized.

A word or two might be said with reference to operations performed for the relief of cerebellar tumors. The anatomic relations of the structure in the suboccipital resemble in certain particulars those in the temporal region. In both the bone is covered with a well-developed musculo-aponeurotic layer, even of a greater bulk in the suboccipital than in the temporal region. For purposes of exploration it is necessary to reflect a flap of considerable size, the incision beginning at the mastoid process and, following the line of the transverse sinus to the occipital protuberance, drops in a vertical direction along the median line. And when the flap is replaced great pains should be taken to approximate carefully not only the cutaneous, but the musculo-aponeurotic layer. When the tumor can not be localized or for any other reason a radical operation is not deemed feasible a less mutilating incision will answer the purpose quite as well. A vertical incision should be made, beginning a little above the superior curved line and extending downward for a distance of three or four inches. The edges of the wound can be retracted sufficiently to afford space necessary to carry on the subsequent steps of the operation. A much more perfect approximation of the wound may be obtained as the muscles are split in the direction of their fibers and not in various angles, as is the case when a curved incision is made following the line of the sinus. This vertical incision enables one to remove the bone only from one side, but, if, for any reason, a bilateral craniectomy seems advisable, the muscle-splitting operation may be repeated on the opposite side. Such a procedure has many advantages over the conventional bilateral craniectomy in which the bone from one mastoid process to the other is removed. There is less chance of disturbance arising from traction on the pons or medulla if an intervening bridge of bone is left. In addition to this the bone in the region of the occipital region is very vascular, often riddled with vascular channels of such dimensions as to admit of a very profuse and sometimes alarming hemorrhage. The region immediately surrounding the occipital protuberance should be regarded as the dangerous zone and as such scrupulously avoided.

Failing to find the tumor. we have in certain cerebellar cases deliberately removed from one-quarter to one-third of the cerebellar hemisphere and have attributed the relief of pressure, in part at least, to this. In all our cases the operation has been confined to one side, and as yet we have not found it necessary to operate a second time for the removal of the bone on the opposite side. Even if it were conceded to be necessary to remove eventually the bone overlying both hemispheres, the operation had better be performed in two stages rather than in one; patients with cerebellar lesions are at the best not very favorable subjects for operative intervention, and preference should be given, therefore, to this procedure, which in giving the desired results will require less time and be attended with less hemorrhage and traumatism of the tissues.

First, as to those cases in which the tumor can not be localized. There are two points in the technic of the operation about which there may be some difference of opinion, namely, the area of the brain to be uncovered and the incision of the dura. The decompressive operation consists solely in the removal of a portion of the cranial vault, with or without incisions into or removal of a portion of the dura. When there is no guide as to the situation of the tumor, the operator is free to select either one of four areas: the frontal, parietal, occipital or temporal. In discussing this question several years ago, attention was called to the desirability for cosmetic reasons of avoiding both the frontal and occipital regions; there remain, therefore, but two areas from which to make the election: the parietal and the temporal. It is desirable, as Sänger suggests, to give preference to that portion of the skull beneath which may be said to exist a silent area of the brain. This is especially true of the right temporal region, so that, in the absence of any contraindication, this may be said to be the region of choice. Through a longitudinal incision, following the direction of the fibers of the temporal muscle, a section of bone equivalent to 6 or 8 square centimeters may be removed. One should be content to make but one opening, at least at the first sitting. This will be found in most cases to be sufficient to afford the necessary relief of pressure. If in the course of events there is evidence of a recurrence of increased tension, as shown by such symptoms as headache, vomiting or choked disc, a second opening may be made on the opposite side of the head. Such were the circumstances in one of our patients (Case 5). The headache, which had been relieved temporarily, recurred. A second opening was made on the opposite side of the head, and since that time, a period of about three years, the patient has enjoyed almost entire relief.

Speaking now only of those cases in which the tumor has been definitely localized, it is impossible to determine prior to the operation whether the tumor is one appropriate for a radical rather than a palliative operation. The duration of the disease is a guide neither to the size nor to the nature of the tumor. Malignant tumors in the brain are, many of them, surprisingly slow in their growth, and, though of many months' or years' duration, may still be in the operable stage. A very large tumor may be present with comparatively slight disturbance, or a very small one may be very serious in its consequences. A tumor of several years' duration may be no larger than a hickory nut or walnut, and yet give rise to a condition which may ultimately prove fatal.

Recently I was called by Dr. Charles K. Mills to operate on a patient who had had symptoms of a tumor for more than a year. The localizing symptoms were very vague, but all seemed to point to a lesion of the left cerebellar hemisphere. This was thoroughly explored, but with negative results, except in so far that there seemed to be a very unusual degree of tension within the cerebellar fossa. This was so suggestive of the presence of a tumor as to justify a very careful search. The results were negative. About two weeks later the patient died, and a tumor as large as a peach was found compressing the under part of the occipital lobe directly in contact with the tentorium cerebelli. Its position satisfactorily explained the existence of cerebellar symptoms. As the brain was being lifted out of the cranium at the autopsy the tumor dropped on the table. Though of large dimensions, it was clearly an operable one, and had the symptoms made it possible to localize the growth it could have been removed without any diffi-

culty, and owing to its benign nature the operation would have resulted in a complete cure. In such a case had the operator proceeded deliberately to the performance of a decompressive operation and not attempted to explore the affected area the opportunity of saving the patient's life and of affording him permanent relief would have been thrown away.

In every instance, therefore, the operator should begin the operation with the intention, first, of attempting to expose the tumor. He should proceed as for the performance of an osteoplastic operation; the flap should be carefully mapped out and reflected and the usual exploratory measures adopted. Failing to find the growth or finding an inoperable one, the propriety of a decompressive operation is clearly indicated. He must then determine as to whether he will remove the bone of the flap, wherever this may be, or close the flap and remove the bone from the area of choice, namely, over the right temporal lobe. When, as is true in the major-

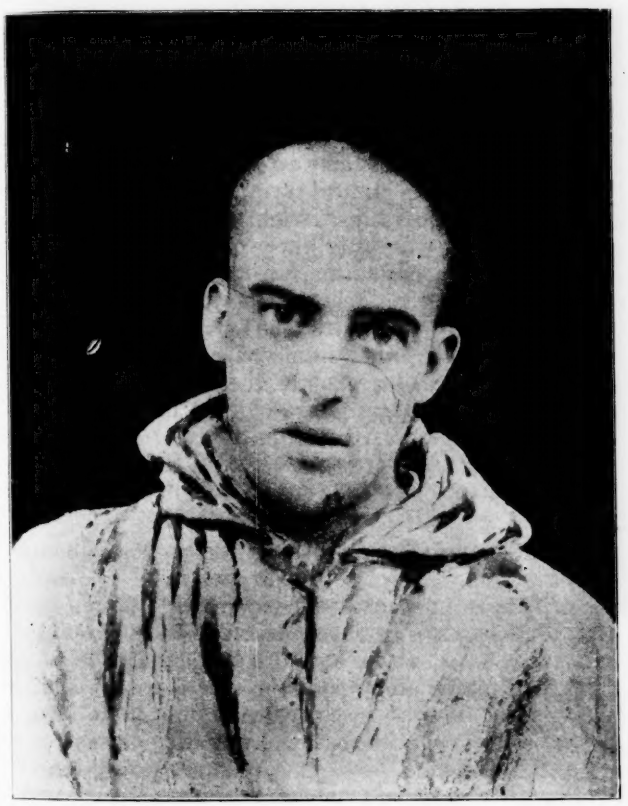

Fig. 1.—Showing the protrusion subsequent to the development of a hernia cerebri following a decompressive operation, in which, after exploration, the dural wound was closed (Case 10).

ity of cases, the tumor is situated in the postfrontal (motor) or parietal region the bone over the temporal region may be removed through the same opening, thus avoiding the necessity of another incision. This was the procedure adopted in one of our reported cases. The patient was suffering so intensely from headache that he was operated on the day of his admission to the hospital; not waiting to make a more careful study of the case with a view toward accurately localizing the growth we proceeded at once with the intention of performing a decompressive operation. Sufficient was known of the case to lead us to believe the tumor was in the motor region. Accordingly this was laid bare and a very large vascular tumor, probably a sarcoma, was at once exposed. Deeming it to be inoperable and wishing to afford relief from the intracranial tension, only the lower half of the bone contained in the flap, which extended down to the Sylvian fissure, was removed, but through the same opening a considerable portion of the bone lying below the fissure and under the temporal muscle was also removed with Rongeur forceps. As will be seen in the record (Case 10) the headache was immediately relieved. The most important question, however, in the technic of the decompressive operation is as to whether the dura shall be incised or removed. The region from which the bone is to be removed is by comparison a matter of slight importance. To be able to answer this question one must be in a position to state from experience, first, whether the escape of cerebrospinal fluid through a dural opening is essential, and secondly, whether sufficient relief of tension may be afforded with the dura intact. As to the escape of cerebrospinal fluid there are certain observers, notably v. Bergmann, who believe that the beneficial effect of this operation is largely attributable to the escape of cerebrospinal fluid. It might be difficult, possibly, to prove or disprove this idea on theoretical grounds, but from our own experience we have not been able to note any radical difference in the results between those cases in which the dura was either left intact or if incised for exploration, was closed immediately afterwards. To the escape of a small quantity of cerebrospinal fluid through a temporary opening in the dura could scarcely be attributed the relief, which extends

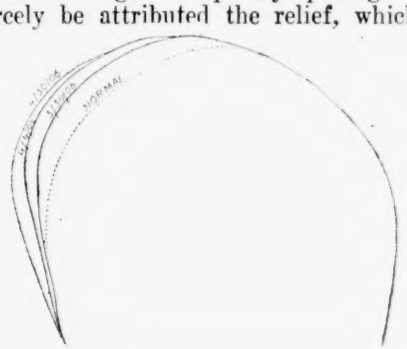

Fig. 2.—Showing the rapid development of a hernia cerebri in the decompressive operation. After the operation the dural wound was closed. The dotted line represents the normal contour on the affected side. The other lines represent the contour of the head: (1) March 30, 1906, one week after the operation, (2) April 4, 1906, twelve days after the operation, (3) April 30, 1906, five weeks after the operation (Case 10).

over a period of months or years. In so far, therefore, as the results of the operation are concerned, it makes no difference whether the opportunity for drainage was afforded by a permanent opening in the dura. In the most satisfactory of the cases under our care the dura was closed in one case, particularly, in which an exploratory dural incision was not entirely closed, the patient enjoyed no appreciable benefits from the operation.

I think it is very generally believed (by those who have had but little experience with these operations) that the success of the operation depends on the establishment of an opening in the dura as well as in the skull. It is said that the dura is not elastic enough to stretch sufficiently when subjected to pressure. That the dura will stretch, when the overlying bone is removed sufficiently to afford adequate relief of tension, has been demonstrated in our cases over and over again. Take for example, a case which was operated on for a tumor believed to be in the occipital region. The tumor was not to be seen on or near the cortex, but there was a very much dilated right ventricle, possibly due to a tumor at the base, cutting off the intraventricular communication. If we turn to the illustration (Fig. 1), we see

a genuine hernia cerebri, a hernia in which the dura as well as the scalp form the coverings. This patient has been under observation for a number of years and for the past year the hernia has not increased in size. The optic neuritis was in this case too far advanced to enable us to save the patient's vision; in other respects the patient enjoys excellent health and is now in attendance at an educational institution. A decompressive operation was not a matter of choice in this case, at least at the outset this was not contemplated. The brain bulged so through the opening that it was impossible to close the flap without removing the bone.

As an example of how rapidly the dura may stretch when subjected to excessive pressure, one of the cases of our series may be cited in which an exploratory craniotomy revealed a large and very vascular ill defined sarcoma. Its removal was out of the question, the incision in the dura was closed and a section of bone removed. Several records were made of the convexity of the head (Fig. 2) at short intervals and it is rather surprising to find how rapidly the dura had expanded to accommodate the growth. On the other hand in another case in which a tumor was exposed and found inoperable the dural incision was only partially closed. The results in this case were as compared with the other, in so far as the relief of symptoms was concerned, much less satisfactory.

Whatever else may be said either in favor of or against the removal of the dura it should be borne in mind that if the dura is removed and any complication arises in the repair of the wound it is more than likely that a fungus cerebri will develop. An accidental wound infection, the persistence of a sinus, the remains of a drainage tract may result in infection of the exposed brain tissue and that very fatal condition, a fungus cerebri. In the hands of operators, experienced in this field of surgery the danger is very slight, but it is questionable whether the removal of the dura should be resorted to as a universal practice. While in a given number of cases the results may not be so pronounced the mortality will be higher unquestionably if the dura is removed in every case. Inasmuch as the brain may herniate through the opening in the skull when the dura is left intact, there is really no necessity for removing more than the overlying bone. If the dura is disturbed at all the operator should be content with making a crucial or radiating incision in it, and in many cases it may be advisable to reserve this step of the operation until indications arise for further intervention. This course was pursued in one of our cerebellar cases in which temporary relief having been afforded the symptoms, particularly pain, recurred. A muscle-splitting incision was made, the edges of the wound retracted and a crucial incision made in the dura. The results were very gratifying and have continued so now for a period of several months.

Mortality.—Every one of the twelve patients operated on at the University Hospital, eleven by Dr. Frazier and one by Dr. Martin, recovered. The absence of any fatalities in the entire series is worthy of note. When one is debating, as to the advisability in a given case of performing a radical or palliative operation, consideration should be given to the fact that there is at least no immediate risk as to life from the decompressive operation. In the palliative measure we have an operation, which almost inevitably relieves the sources of discomfort and suffering, not only without endangering but frequently prolonging life; in the radical measure we are undertaking an operation, which has a comparatively high mortality and is only successful in a small percentage of cases in finding and removing the tumor.

Results.—The opinions expressed in the paper are based on observations in a series of fourteen cases. The first operation was performed in 1898 and the last, March 20, 1906. In but one of the entire series did the operation fail to afford the relief which would justify its performance. There was in this case some immediate improvement, but so slight as not to warrant the promise of relief which was held out to the physician and relatives of the patient. The operation was performed in March of this year, the patient was at the time almost comatose and her life was in immediate danger. At the present writing, May 25, 1906, her physician, Dr. Thomas O. Nock, writes me that the patient has been moved to the country, but her condition is little, if any, improved. All that can be said of this case is that life has been prolonged. The results in this case are a striking contrast to those following an operation performed in October, 1903. This patient probably has two lesions, one in the parietal lobe and one in the cerebellum, and before the operation suffered intensely from headache and neuralgia. When last heard from two and a half years after the operation she still enjoyed absolute relief. Perhaps the most brilliant of the series was a patient who presented the clinical symptoms of a cerebellar lesion, intense choked disc, frightful headaches, and persistent nausea, vomiting and ataxia. This patient (Case 4) was operated on two and one-half years ago and when last seen, February of the present year, he was the picture of health and was engaged in hard manual labor. Neither headache nor nausea recurred, and though he had a choked disc, so elevated that he could scarcely recognize large objects, his vision is now practically normal. Apart from the fact that he occasionally has attacks of what he calls "dizzy spells" he is to all intents perfectly well and now weighs 181 pounds.

The decompressive operation offers to the patient relief from the three cardinal symptoms of cerebral tumor, headache, nausea and vomiting, restores vision, and, if the lesion is in the cerebellar fossa, relieves ataxia and vertigo. Mention has already been made of the dangers of postponing operation once there are signs of choked disc. One of the strongest arguments in favor of the palliative operation is the opportunity to save or restore the patient's eyesight. Without exception the choked discs subsided in every instance, but unfortunately in at least three of our cases the patients remained totally and hopelessly blind because the optic neuritis was of so long duration that the nerve had undergone atrophy. The subsidence of the choked disc takes place as rapidly when the dura is left intact as when it was incised. The case, which in Dr. de Schweinitz's opinion and experience, responded most promptly to the operation was one in which the dura was not disturbed. Although the operation was performed only seven months ago the patient's vision has continued to improve. The prospects of preserving the eyesight alone would justify the operation, but no less so the opportunity of relieving headache. Our results with respect to headache have been uniformly good. There were two or three cases in which the headaches did not entirely cease, but in these there were intervals of relief and the headaches were less severe. As to the duration of the period of relief the longest in our series is between two and one-half and three years. In at least three of

our cases the intensity of the pain seemed to be as great as that of a tic douloureux, and one patient had become addicted to the liberal use of morphin; yet in each one of these the relief was immediate, absolute, and permanent. In one instance the suffering was so intense that the operation was performed within a few hours of the patient's admission to the hospital, before an opportunity was afforded to determine with any degree of accuracy the location of the tumor. What has been said of the beneficial effect of the operation on the choked disc, even when the dura was left intact, may be repeated in dealing with headache. Not that the dura was not opened in some cases for exploration, but in almost every instance the dural wound was immediately closed with sutures.

Mention might be made of the fact that in two instances Nature had already begun to relieve the intracranial tension. In these cases the tumor had grown through the dura and in one instance had almost perforated the skull. In conclusion we may say that there is no form of treatment, either medical or surgical, which, in the presence of an incurable lesion, causing sometimes great discomfort, sometimes intense suffering, so uniformly affords so great and enduring a measure of relief.

SUMMARY OF CASES.*

	LOCATION OF LESION.	PERIOD SINCE OPERATION.	RESULTS
1. L. . . .	Cerebrum. . .	1 year (operation was not performed but relief of pressure occurred spontaneously).	Alive and free from pain.
2. B.	Cerebellum. .	7 years.	Almost complete recovery during 2 or 3 years—present condition unknown.
3. G.	Cerebellum and Cerebrum.	2 years and 7 mo.	Alive and free from pain.
4. E.	Cerebellum. .	2½ years.	Alive and free from pain.
5. D.	Cerebellum. .	2½ years.	Alive and free from pain.
6. B.	Cerebrum. . .	1 year and 7 mo. .	Alive and free from pain.
7. M.	Cerebellum. .	8 months.	Second operation was performed, tumor found and removed.
8. K.	Cerebellum. . .	7 months	Died 7 months after operation.
9. L.	Cerebellum. . .	7 months.	Alive and free from pain.
10. S.	Cerebrum. . .	2½ months	Alive and free from pain.
11. F.	Cerebellum. .	2½ months	Alive and free from pain.
12. D.	Cerebellum. .	2 months	Radical operation was performed 2 months after palliative operation.
13. C.	Cerebrum. . .	. . . . .	Alive but little if any relieved.
14. S.	Cerebellum. .	About 3 years . .	Improved—death from tumor about 3 years after palliative operation.

* A case under the care of Drs. Spiller and Martin to which reference is made in this paper, is not included in this table.

ORIGINAL OBSERVATIONS.

CASE 1.—Probably tumor of motor area. The following case is of great interest as it seems to be one in which relief of symptoms from intracranial pressure occurred by escape of cerebrospinal fluid through the cribriform plate of the ethmoid bone without operation, and it may be, therefore, regarded as a case in which relief was afforded in a manner similar to that in palliative operations.

Examination.—L. was seen by Dr. Spiller in consultation with Dr. Ernest Laplace, Aug. 13, 1904, at which time the following notes were taken: In showing the teeth the left corner of the mouth is drawn up better than the right. When drawing up each corner of the mouth separately he draws up the left better than the right. The eyelids are closed equally well on the two sides, and the resistance to any attempt to passively open the lids is as good on one side as on the other. Percussion of the scalp shows no area of tenderness. When the tongue is protruded it tends to deviate a very little towards the right. The movements of the tongue are free in all directions, and the tongue is not atrophied. The movements of the eyeballs seem to be normal in all directions, except that the movement to the left may be a trifle impaired. There is no nystagmus. The reaction of the iris to light is preserved but tardy on both sides. Convergence and accommodation can not be tested satisfactorily on account of the mental condition. The pupils are equal and regular. The masseter muscle contracts well on each side, but the left masseter contracts a little better than the right when the patient bites. He says that he feels touch more distinctly on the left side of his face. Pin prick is probably perceived in the right side of face as well as in the left, but his statements regarding sensation are not to be relied on. He understands what is said to him, although he appears dazed and has difficulty in replying, but apparently is not aphasic.

Upper limbs: The grasp of the right hand is distinctly impaired and is decidedly weaker than that of the left hand. The upper limbs are well developed and equally so. The biceps and triceps tendon reflexes on the right side are distinctly prompter than the corresponding reflexes on the left side. After a spasm the right upper and right lower limbs seemed to be almost completely paralyzed, and Dr. Laplace says that this paralysis following a spasm is only temporary.

Lower limbs: The lower limbs are well developed and there is no atrophy in any part. The patellar reflex is about normal on the left side, but exaggerated on the right side. There is no ankle clonus on either side. The Achilles tendon reflex is about normal on each side, and a trifle prompter on the right than on the left. The Babinski reflex is very pronounced on the right side; the big toe as well as the adjoining toe being drawn distinctly. The Babinski reflex is not present on the left side, the movement being flexion.

During the examination an epileptic attack occurred. It began with slight flexion of the right forearm on the arm. This movement lasted from thirty to sixty seconds before the face was involved. The right lower limb seemed to be involved before the face. Clonic movements of small extension began in the right lower limb, afterwards the movements occurred in the right upper limb. Both right upper and lower limbs were very spastic. The right side of the face was thrown into violent tonic spasm, and the lids on both sides were equally affected. There seemed to be a slight tendency of the eyeballs to turn to the right, but this was not pronounced. The lower part of the left side of the face, the left upper and lower limbs showed no convulsive movements and the left limbs were not spastic. Consciousness did not seem to be lost during the attack. Urine was not voided during the attack, but was immediately after the attack, voluntarily. After the attack the man was drowsy and passed into a light sleep lasting about five minutes.

Further Examination.—A further examination on August 14, gave the following results: Sensation for touch is more acute on the left side of the face; sensation for pain is more acute on the right side of the face; this agrees with the findings of yesterday. The grasp of the right hand is not so good as it was at the beginning of the examination yesterday. A knife or a pencil put into the right hand is distinguished without difficulty when the eyes are closed. The weakness of the right upper limb has been much greater since the attack that we saw yesterday, than at any time previously. He can barely lift the right hand from the bed. The paralysis of the right lower limbs which developed after the attack that we saw yesterday disappeared in part during the afternoon, whereas that of the right upper limb has persisted with very little change. The sensation for touch and pain seems to be more acute in the right lower limb than in the left. He seems to understand what is said to him, but has difficulty in getting words to reply and is partly motor aphasic. He yawns repeatedly, and Dr. Borsch has noticed that during the convulsive attack the eyeballs are drawn toward the right, but remain in this position only during a short part of the attack. The left pupil is larger than the right and the left recovers more slowly than the right.

Subsequent History.—The following notes were obtained from Dr. Laplace: The patient continued to improve under high doses of iodid of sodium (100 grains daily) until all symptoms of paralysis had disappeared. Headaches also disappeared, but the optic neuritis continued. The field of vision gradually lessened until total blindness ensued, January, 1905. The patient remained in this condition until May, when convulsions attended by severe headaches returned, exactly similar to those seen by Dr. Spiller in August. About forty convulsions took place in the course of the first week in May, 1905. He suffered with intense headaches and was suddenly greatly relieved of all headache and of nearly all the other symptoms on expectorating what seemed to be a certain amount of purulent material. [Dr. Laplace did not see the patient at the time of this nasal discharge]. Whether the material contained cerebrospinal fluid or whether it was pus which found its way into the nose, after burrowing its way through the cribriform plate of the ethmoid can, therefore, only be conjectured. In June and July the patient improved, but his lower extremities remained weak. This weakness of the lower extremities has increased gradually from July, 1905, until the present time. Mental hebetude gradually set in, but there has been an absolute freedom from headache, from July, 1905, until now.

Present Condition.—Complete blindness; perfect consciousness. He is thoroughly rational when aroused; otherwise quite listless. There is great weakness of lower extremities, requiring support to enable him to walk. Both arms are quite strong. Excellent appearance; good appetite and digestion; full control of bowels and bladder. Freedom from headache. Last report says that general weakness is gradually becoming more marked. Mercury and iodids have been continued. The patient and his family have opposed any surgical interference.

CASE 2.—Tumor of cerebellum (?). Mrs. M. B., was admitted to the Polyclinic Hospital, Dec. 31, 1898, under the care of Dr. Spiller and Dr. Roberts.

History.—Patient had been married 26 years, a widow 18 years; had two children, 25 and 20 years old, respectively, at time of death. Emigrated to America five years ago. She had good health until previous to present trouble. Her present condition began two and one-half years ago with violent headaches in the left occipital region. Her symptoms have gradually increased in number and intensity, until at present they consist of very severe headache in the left occipital region, great tenderness over the same region, extreme vertigo, especially when lying on the left side in bed or attempting to walk; very ataxic gait so that she staggers like a drunken person and falls to the left side or backwards.

Examination.—The patellar reflexes are absent; sensation in the legs is obtunded, and movements of the lower extremities somewhat restricted (she can not cross her legs). During the last few months she has been getting rapidly worse. A diagnosis of cerebellar tumor was made, and the patient was admitted to the wards of the Polyclinic Hospital for an exploratory operation. Urinary examination, color, amber, cloudy; reaction, acid; sp. gr. 1,020; no albumin or sugar.

Operation.—On June 4, 1899, under ether, the skull was opened by trephine and lion-jawed forceps, a hole about 1½ inches in diameter being made over the probable seat of the lesion as indicated above. The dura mater appeared normal, as did the bone removed; the dura mater was laid back, the brain exposed, the finger inserted and the surface of the brain palpated for an area of five inches or more in diameter, but no abnormality was detected. A puncture was then made into the convolutions of the brain in several directions with a grooved director to the depth of three-fourths inch without finding any lesion. The dura mater was then sutured, and the skin flap brought into place and secured. The patient made a good recovery from the anesthetic but her temperature began to rise rapidly that night, reaching 101° F. at 7. p. m. Infection being feared, the dressing was removed, the sutures partially withdrawn, and the wound flushed with normal salt solution. The wound was redressed at frequent intervals since, all the sutures removed.

Results.—June 30. The patient has been slowly improving since the 20th, the temperature having been practically normal. The parietal region on the operated side has almost entirely lost its peculiar tenderness to touch, and the headache occurs only occasionally, is slight and is now located in the frontal region. The patient made a complete surgical recovery, and almost all her symptoms disappeared. After two or three years she returned to Europe.

CASE 3.—Tumor of the pons. Mrs. G., aged 45, was admitted to the University Hospital under the care of Dr. Charles K. Mills, October, 1903.

History.—Tumor of the pons, probably second lesion in the parietal lobe; cyst evacuated; permanent disappearance of severe headache and facial neuralgia. This patient, a woman about 45 years old, first came under the care of Dr. Mills in November, 1902. One year before coming under observation she had an attack of vertigo without unconsciousness and after this partial paralysis of the left third nerve was observed, ptosis, dilated pupil and paresis of the internal rectus being present, according to the physician then in attendance. From the history she also appeared to have had temporary paralysis of the left side of the face. She had subsequent similar attacks, some of these shortly before coming under observation. In one of the recent seizures she was found in the cellar, pacing up and down with her hands above her head, eyes dilated and apparently struggling against suffocation. She was taken upstairs and put to bed; she tried to speak, moving her jaws without uttering a sound; her face was pale, her eyes were open. At the time of the first examinations she had paresis of the left side of the face, partial ptosis, pupils equal and responsive, the superior rectus not being as active on the left side as on the right.[34]

Examination.—The patient was again examined by Dr. Mills and Dr. Spiller, Sept. 22, 1903. The left side of the face was paralyzed in the entire distribution of the seventh nerve. She complained of much pain, confined to the left side of the face and in the distribution of the fifth nerve. The masseter and temporal muscles contracted well in chewing on each side. No distinct objective disturbance of sensation on the left side of the face was made out. The left external rectus seemed to be the only external ocular muscle distinctly paretic. Astereognostic conception as tested in the right hand was almost complete.

She complained of much pain on both sides of the forehead, extending down the left side of the face to the lower border of the lower jaw. The pain did not extend below the median line of the lower jaw; it extended to the mastoid process, but not beyond this on the left side; it did not extend into the neck. She had constant pain in both temples, but it was greater in the left than in the right. All points of exit of the fifth nerve were painful to pressure; as much so on the right side as on the left. Sensation for touch and for pain on the two sides of the face seemed to be normal; she felt a touch or pin prick as well on the left side of the face as on the right. In such instances as when chewing a hard crust of bread, the left masseter contracted, but not so well as the right; in opening the mouth the lower jaw did not deviate distinctly. She complained of a sense of numbness in the left side of the face; this involved the entire distribution of the fifth nerve and extended on the left to the temple, but not far beyond the border of the hair. There was considerable improvement in the paralysis of the orbicularis palpebrarum. There was complete paralysis in the lower distribution of the left facial nerve. The right side of the face was normal. She did not have any nausea and seldom had spells of vertigo, although formerly the latter occurred frequently. She showed at times a tendency to fall backward or toward the left, but did not stagger as much as formerly; closing the eyelids did not affect the gait very distinctly. Hemiasynergia was not present on either side.

As the patient was slowly getting worse and was suffering extremely with pain in her head and face, it was finally decided to remove her to the University Hospital for the purpose of having an operation, which might at least be palliative.

34. The case is fully reported as Case 6 in a paper by Dr. Charles K. Mills, on "The Diagnosis of Tumors of the Cerebellum and Cerebellopontile Angle, with Special Reference to Their Surgical Removal," New York and Phila. Med. Jour., Feb. 11 and 18, 1905.

Her pain increased until it became torturing, and for days before the operation it was necessary to keep her continuously under the effects of morphin or codein. No change of any moment occurred in her focal symptoms after the above recorded notes.

Operation.—The operation was performed by Dr. Frazier, Oct. 14, 1903, under ether anesthesia. A musculocutaneous flap together with the periosteum was reflected and an opening was made in the skull with the chisel and enlarged with Rongeur forceps. Nothing abnormal as regards pulsation nor consistency of the left lateral lobe of the cerebellum was noted. The dural flap was reflected; at one point this flap was adherent to the underlying brain. Cerebellar tissue bulged only moderately through the wound. On exploring with the index finger in the region of the cerebellopontile angle some adhesions were separated on the lateral aspect of the cerebellum. This was followed by a gush of fluid which had evidently been walled off by adhesions. After the evacuation of the cyst the bulging subsided immediately and with a brain retractor it was possible to inspect the region of the cerebellopontile angle and to demonstrate to those present at the operation, the fifth, seventh and eighth cranial nerves. It was noted on the blood pressure chart that when the dura was opened the blood pressure dropped thirty points and that on introducing gauze packing or on compressing the brain with the retractor that the blood pressure rose forty points. The patient's condition was not depressed to any considerable degree by the operation; on her return to bed the pulse was 145; respirations were 40, and blood pressure was 115.

The interesting feature of the case was the ease with which the cranial nerves were exposed after the cyst had been evacuated.

The patient reacted well after the operation and passed a fairly comfortable night. There was very profuse oozing of blood and cerebrospinal fluid, necessitating frequent reinforcement of dressing. The patient was much nauseated, vomiting curds of milk and bile-stained fluid. She complained of pain in her temples. An incomplete examination showed that sensation was present on both sides of the face and no inequality of pupils was noted. On October 15 the wound was dressed and found in good condition; the drainage was removed, there was a free flow of cerebrospinal fluid.

Subsequent History.—An examination by Dr. Mills and Dr. Spiller on October 15 resulted as follows: No cutaneous anesthesia was present on either side; not even any hypesthesia on the left. There was no great impairment of the motor division of the fifth nerve, the masseter and pterygoid muscles being tested. Complete paralysis in the muscles supplied by both the upper and lower branches of the seventh nerve was present. She was completely deaf in the left ear. Slight paralysis in the right upper extremity was noticed. Astereognosis or pseudoastereognosis was present in the right hand. Anesthesia for both touch and pain and hyperesthesia were absent. She had had no pain in the face or head since the operation and had required no anodynes.

October 19: The wound was again dressed and the stitches were removed; the wound was healed, with the exception of one angle; a small piece of gauze was inserted for drainage. The patient's general condition had been very good. Her pupils were normal.

October 24: The surgical condition was entirely satisfactory; the wound was healed, with the exception of one spot, which was rapidly granulating. The patient's general condition had rapidly improved since last noted. She was regaining strength, had been sitting up and was quite comfortable.

October 29: Patient was discharged, the surgical condition left nothing to be desired; the wound was completely healed; there was no bulging of the flap, no signs of inflammation or edema of the scalp. She had not had any pain in the head or ears; the only discomfort had been some irritation of the conjunctiva of the left eye, which was probably due to facial palsy.

Results.—When the patient was last heard from two years after the operation, the relief from headache and neuralgia continued, although, as previously stated, the pain for some time before the operation was of the most intense character. In other respects her general condition has been good. She still continues to be partially paralyzed, with astereognosis and sensory changes on the right side and still has paralysis in the distribution of the left seventh nerve. It is altogether probable that a lesion of some sort is still present; not improbably she has more than one lesion, as the symptoms point both to the pons and to the left parietal lobe. The case is especially interesting as showing how in some cases the cerebellopontile angle can be exposed and how pain and other symptoms of brain tumor are sometimes relieved even when full success is not obtained.

(*To be continued.*)

FEMORAL HERNIOTOMY.*

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CHICAGO.

The subject of herniotomy for inguinal, umbilical and ventral hernia seems to have come to a practical conclusion by the universal acceptance of the different principles embodied in the methods in inguinal herniotomy introduced by Bassini and further developed by Andrews, Ferguson and Coley; the method of Mayo for umbilical hernia; the method of anatomic dissection and union of corresponding layers in cases of postoperative ventral hernia and hernia of the linea alba.

TREATMENT OF FEMORAL HERNIA.

It is in femoral herniæ that the methods still differ greatly. As a matter of convenience to the reader I have added a short summary of the most important ones of these various methods.

The object of this paper is to introduce into the treatment of femoral hernia a principle which has for many years been universally recognized in surgery and which has, it seems, been employed by only a few surgeons in the treatment of femoral hernia.

It is a well-known fact that it is practically impossible to keep a circular opening in any part of the body from closing spontaneously unless it be lined with a mucous or serous membrane. The anatomic relations at the femoral canal are such as to form ordinarily a definite circular opening.

LITERATURE OF THE SUBJECT.

As early as 1879 Socin[1] speaks of six of these cases which apparently were permanently cured by simply removing the hernial sac and fat and suturing the skin, thus making use of the principle which I have mentioned. Since that time I find in the literature a number of interesting articles written by Anderegg, Lesirink, Munsinger, Julliard and Biedel in which this principle was employed in a measure, but no one seems to have attributed the success of this operation in obtaining a radical cure for femoral hernia to the principle I have mentioned.

Singularly enough surgeons seem to have had perfectly satisfactory results by doing nothing further than thoroughly to dissect, ligate and remove the sac, the preperitoneal fat, and to suture the skin until the method of operating for inguinal hernia was introduced by Bassini. Subsequent literature shows that surgeons, writing on the subject of femoral hernia, reason from the conditions present in inguinal hernia, although anatomically these conditions are entirely different and,

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

1. Langenbeck's Arch., vol. xxiv.

therefore, the conclusions arrived at must necessarily be faulty. As a result of this fact a number of methods have been introduced, most of them resulting in a distortion of this opening, and each of these producing a considerable number of recurrences.

AUTHOR'S METHOD.

The femoral canal is bounded anteriorly by the transversalis fascia, Poupart's ligament and the falciform process of the fascia lata; posteriorly by the iliac fascia, covering the pubic portion of the fascia lata; externally the fibrous septum separating it from the femoral vein; internally the junction of the processes of the transversalis and iliac fasciæ forming the femoral sheath lying against the outer edge of Gimbernat's ligament. The femoral opening is lined with the serous membrane comprising the hernial sac which is an outfolding of the peritoneum.

In order to change this into an unlined circular opening which must necessarily close spontaneously all that it is necessary to do is carefully to dissect out the hernial sac quite up into the peritoneal cavity beyond the inner surface of the femoral ring, ligate it high up, cut it off and permit the stump to withdraw within the peritoneal cavity. Removing all the fat contained in the femoral canal and simply closing the skin wound completes the operation for femoral hernia. This method is applicable to all simple femoral herniæ in which an actual femoral ring exists.

Occasionally there is a case in which the hernia is of traumatic origin and the opening is formed by the tearing of one edge of the ring, so that the opening is no longer regular and circular. A similar condition may also be due to a congenital deformity. Such an opening may not close spontaneously; in such cases there can be no indication for using this method. Neither is the method applicable to operations for strangulated hernia in which the femoral ring has to be cut to permit reduction.

RESULTS AND DISCUSSION.

I have used this method constantly during a period of fourteen years and am convinced that, barring unusual accidents, recurrences are out of the question if the operation is performed in this manner. I have been able to get definite reports and to examine 30 cases of femoral hernia contained in the following table. None of these operations was followed by recurrence. This number contains only a part of the patients operated, because it was not possible to get information from many of the patients of foreign birth, who do not read or write the English language and who change their residence so often that it is difficult to follow them, but there can be no doubt that the results in these cases correspond to those in which I was able to obtain information.

I have written a letter to each one of the patients on whom I operated for femoral hernia at the Augustana Hospital during the past fourteen years; 56 cases in all. Of these letters thirty-one were answered, twelve were returned through the mail, and thirteen have not been heard from.

Giving all of the answers of those that have responded will, I believe, give a fair idea of the ultimate result in these cases. I have not written to patients operated on in the other hospitals, because the number at the Augustana Hospital seemed sufficient to draw conclusions from. A greater proportion of my English-speaking patients go to this hospital than to my public clinic. I was, therefore, more certain to obtain information from the Augustana Hospital patients than from those operated in the other institutions.

It may be claimed that, if a hernial protrusion has occurred, it will occur again unless some mechanical means be employed for the closure of the femoral opening. A study of the histories of these cases shows that the original cause of the hernia can always be found in some abnormal intra-abdominal pressure of a temporary nature, or in the presence of peritoneal fat in the femoral canal. Severe gaseous distension of the intestines during childhood; whooping-cough; severe cough due to bronchitis recurring every winter; heavy lifting in young girls in the capacity of servants, before they were fully grown; pregnancy; large intra-abdominal tumors; severe sudden strains like lifting a heavy burden or being thrown from a bicycle or a moving carriage, and the presence of preperitoneal fat in the femoral canal are the most common causes. All of these immediate causes can be guarded against, and in this way a recurrence is not likely to occur.

Case 7 will serve as an excellent illustration of the permanency of the closure of the femoral ring when the operation is performed in this manner. The patient was married two years after I performed the operation for hernia. After bearing her first child she noticed a femoral hernia on the opposite side, while the canal on the side operated on remained firmly closed.

Case 8 also serves as an illustration. The patient acquired an incipient inguinal hernia during a period when she did a great deal of heavy lifting. The femoral canal operated remained perfectly closed.

Case 6 is also interesting, because it illustrates the same fact. The patient recovered fully from her herniotomy and remained so until two years later, when she suffered from an intestinal obstruction. A band extending from the mesentery of the ileum to the cecum at the base of the appendix had evidently existed for a long time, there being an indefinite history of peritonitis due to appendicitis several years before the patient came to the hospital for herniotomy. Two days before the patient entered the hospital a portion of the ileum had slipped under this band and had become strangulated. The patient was brought to the hospital with an enormously distended abdomen. She was operated on and recovered. The scar at the seat of the original hernia was stretched together with all the tissues of the abdominal wall, but this did not suffice to cause a recurrence of the hernia.

In cases in which the femoral ring has been artificially closed there is always a distortion of the circular opening unless this closure be according to the method advised by Cushing, Marcy or Kuester consisting in a circular suture which does not interfere with the arrangement of the femoral ring.

The method devised by Kocher, consisting in suturing the pectineal fascia over the opening, and the method advised by Lucus Championierre, which is very similar, are also relatively harmless. The study of the literature shows that the method of closing the opening by distorting the femoral canal will result in keeping it open in a considerable proportion of cases, some of these producing as high as 18 to 20 per cent. of recurrences. These facts seem to indicate that in this definite class of cases of femoral hernia the principle mentioned above should be employed.

PRINCIPAL FEATURES OF METHODS.

In order to sum up this subject somewhat comprehensively in the brief space in which this paper must be limited, it has seemed proper to mention the principal features of the most important methods which have been practiced in a considerable number of cases of femoral hernia.

1. Ligature and extirpation of sac: Socin, Anderegg, Leisrink, Munzinger, Julliard and Riedel.
2. Suturing of Poupart's ligament to pectineal fascia: DeGarmo, Mocher, v. Frey, Berger, Czerny and Schede.
3. Two rows of sutures of Poupart's ligament to pectineal fascia by Bassini.
4. Two rows of sutures attaching falciform to pectineal fascia by Champonierre.
5. Purse string sutures: Cushing.
6. Purse string sutures and pad made by doubling sac: Curtis, MacEwen, Tricome, Coley, Reffa and Fortunat.
7. Purse string suture in several tiers: Kuester.
8. Closing femoral opening by muscular aponeurosis flap: Salzer and Dawborn.
9. Closing femoral opening by periosteal flap: Trendelenburg.
10. Closing femoral opening by decalcified bone: Thiriar.
11. Closing femoral opening by ball of catgut: Schwarz.
12. Cutting through periosteum of ramus; three holes bored through bone; silk suture to Poupart's ligament: Hammersfahr.
13. MacEwen's method of making pad from sac combined with attaching Poupart's ligament to bone with mattress sutures: Nicoll.
14. And suturing Poupart's ligament to bone: Mikuliez.
15. Fastening Poupart's ligament to ramus with staple: Roux.
16. Passing a ligature through obturator foramen to tie down Poupart's ligament: Cavazzani.
17. Cutting Poupart's ligament from its moorings and sewing it to ramus: Fabricius and Delageniere.
18. Changing femoral into inguinal hernia: Ruggi.
19. Fastening conjoined tendon to ramus: Lotheisen, Codivilla and Parry.
20. Cutting entirely through Poupart's ligament just to the inside of the femoral vessels and making a triangular flap which is sutured to the periosteum of the horizontal ramus of the os pubis.

These methods may be classified in four groups:

1. Those in which the sac has been removed high up.
2. Those in which it has been utilized to form a pad.
3. Those in which the femoral canal has been left in the form of a circular opening.
4. Those in which it has been distorted either by cutting or suturing.

It seems reasonable to affirm that every method which does not contain the third of these characteristics must be considered bad from a surgical standpoint.

PROCEDURE OF DIFEERENT METHODS.

In order to make comparison convenient I have tabulated the various steps which are followed by surgeons of the greatest experience who practice the various methods which have been employed in the largest number of operations for the relief of femoral hernia.

I. SOCIN'S METHOD.

1. Skin incision a little below and parallel with Poupart's ligament.
2. Freeing of sac high up into abdominal cavity.
3. Removal of all fat and loose tissue.
4. Pulling down sac by assistant.
5. Ligating and cutting off sac high up.
6. Having stump slip into peritoneal cavity.
7. Suturing of skin incision.

II. CUSHING'S METHOD.

1. Free sac well beyond its neck, transfix it, tie it off as high as possible to avoid a funicular process.
2. Introduce a purse string suture of chromicized catgut through Poupart's ligament, the pectineal fascia and muscle, then outward through fascia lata covering femoral vessels and finally up through Poupart's ligament again coming out one-half inch from where suture was started.
3. Tie the suture and obliterate femoral canal.
4. Suture skin incision.

III. COLEY'S METHOD.

1. Thoroughly free sac well beyond neck.
2. High ligation of sac.
3. Suture is introduced through Poupart's ligament or the inner portion of the canal or crural arch, thence downward into the pectineal muscle or floor of canal, outward through fascia lata overlying the femoral vein and upward through Poupart's ligament or roof of canal, emerging about three-fourths of an inch from point of introduction.
4. On tying suture the floor of canal is brought in apposition with roof of canal and the femoral opening is obliterated.
5. Close superficial fascia with catgut or fine tendon and the skin with horse hair.

IV. CURTIS' METHOD FOR CLOSING THE CANAL AFTER THE SAC HAS BEEN REMOVED.

1. Three superimposed circular purse string sutures of catgut are introduced.
2. The first at the internal femoral opening.
3. The second one-third of an inch outside of this.
4. The third at the external surface of canal.
5. This method is not suitable for large herniæ.

V. LOTHEISSEN'S METHOD.

1. Incision parallel to Poupart's ligament and a little above same dividing fibers of external oblique and extending into external inguinal ring.
2. Expose neck of sac by entering between Poupart's ligament and the internal oblique.
3. Dislocate sac by pulling same, if small, into opening above Poupart's ligament.
4. In large hernia, dislocate the skin at the lower edge of the original incision, expose the external surface of the sac, incise sac and finally dislocate the stump of the sac in manner previously described for small hernia.
5. Suture edge of transversalis and internal oblique muscles to Cooper's ligament.
6. Suture the incisions in the aponeurosis and skin separately.

VI. NICOLL'S METHOD. (A)

1. Expose sac and clear from surrounding tissue, making the incision vertical or transverse.
2. Open sac longitudinally in middle line and clear contents.
3. Separate neck of sac for one inch around abdominal aspect of ring.
4. Bisect sac longitudinally from fundus to neck.
5. Make an aperture in one-half near the neck.
6. Interlock the halves by putting the other through one of the apertures.
7. Reduce whole sac through the femoral ring by detaching its neck from the abdominal aspect of the ring.

B—Closure of femoral ring by use of the pubic ramus.

1. Carry an incision (bone deep) from femoral vein along the pubic ramus to the region of the pubic spine.
2. Detach the periosteum to a limited extent and retract it.
3. Drill one or two holes in the bone near its upper edge one-half inch to one inch apart.
4. Pass loops of strong catgut through the apertures.
5. Divide the loop of ligature. Thread one end in a curved surgical needle and pass a mattress suture through Poupart's ligament. Repeat with second end, carrying it through Poupart's ligament at a higher level, avoiding the deep epigastric artery, and the spermatic cord above in males.
6. By means of probe withdraw both ligaments through the second drill hole in the bone.

7. Tie the ends of each loop separately over the front of the bone, thus drawing Poupart's ligament down to the posterior-superior surface of the bone and fixing it firmly in contact with that surface, constituting in effect an extension outward of Gimbernat's ligament and absolutely closing the ring.
8. Complete the operation with interrupted catgut sutures by uniting the detached margin of the pectineal origin and the pubic portion of the fascia lata to the "anchored" Poupart's ligament.

AUTHOR'S CASES TABULATED.

No.	Hosp. No.	Age and Sex.	Diagnosis.	Date of Operation.	Date of Re-examination.	Result.
1	858	30, F.	R. F. hernia.	March 21, 1892.	May 10, 1906.	Operation a perfect success. General health greatly improved.
2	2850	61, F.	R. F. hernia.	May 6, 1896.	May 13, 1906.	Operation complete success.
3	4307	41, F.	L. F. hernia.	Oct. 29, 1897.	May 16, 1906.	Pefect result.
4	5115	59, M.	R. F. hernia.	July 6, 1898.	May 23, 1906.	Has had no trouble since operation.
5	6615	56, F.	R. F. hernia.	Sept. 18, 1899.	May 13, 1906.	Perfect recovery; patient in perfect health.
6	6801	33, F.	R. F. hernia.	Nov. 5 1899.	May 11, 1906.	A slight stretching of scar tissue following enormous abdominal distention due to intestinal obstruction caused by a band of adhesions across the ileum, but no recurrences.
7	752	22, F.	L. F. hernia.	April 23, 1900.	May 22, 1906.	Left femoral hernia cured by operation, but a R. F. hernia developed after birth of first child.
8	8162	38, F.	L. F. omental hernia; incarcerated.	Sept. 26, 1900.	May 13, 1906.	Examined patient personally. Found inguinal hernia produced by extremely hard labor four years after operation for femoral hernia. No recurrence.
9	8249	38, F.	L. F. hernia.	Oct. 17, 1900	May 15, 1906.	Result of operation perfect.
10	859	27, F.	R. F. hernia.	Jan. 11, 1901.	May 16, 1906.	Operation a perfect success. General health greatly improved.
11	9040	31, F.	L. F. hernia.	April 22, 1901.	May 14, 1906.	Success of operation perfect. Absolutely no pain or discomfort following recovery.
12	9276	46, F.	R. F. hernia.	June 12 1901.	May 18, 1906.	Recovered perfectly from the operation for the hernia; is at present having some pain, due to uterine trouble.
13	9462	42, F.	R. F. hernia.	July 26, 1901.	May 14, 1906.	Perfectly recovered.
14	10511	58, F.	L. F. hernia.	March 24, 1902.	May 13, 1906.	Operation successful; patient's general health improved.
15	10918	66, F.	L. F. hernia.	June 20 1902.	May 10, 1906.	Recovery perfect; general health improved.
16	11447	42, F.	R. F. hernia	Oct. 1, 1902.	May 21, 1906.	Operation successful
17	11950	58, M.	Incarcer'ted hernia.	Jan. 9 1903.	June 13, 1906.	Recovered perfectly.
18	12176	42, F.	R. F. hernia.	Feb. 20, 1903.	May 14, 1906.	Operation successful; patient in perfect health.
19	12301	41, F.	L. F. hernia.	March 16, 1903.	May 23, 1906.	Operation a success; patient felt slight soreness for three months after operation, but has been perfectly comfortable since.
20	12457	49, F.	R. F. hernia strangul'ted.	April 15 1903.	May 20, 1906.	Operation successful.
21	12739	34, F.	L. F. hernia.	June 8, 1903.	May 14, 1906.	Operation successful.
22	14300	30, F.	L. F. hernia.	April 22, 1904.	May 16, 1906.	Patient recovered perfectly from hernia operation.
23	14392	44, M.	L. F. hernia.	May 11, 1904.	May 26, 1906.	Operation perfectly successful.
24	14447	45, F.	R. and L. hernia strangulated.	May 21, 1904.	May 10, 1906.	Recovery perfect; patient in perfect health.
25	14899	47, M.	R. and F. hernia strangulated.	Aug. 17, 1904.	May 15, 1906.	Patient well; no return of trouble.
26	15350	32, M.	R. F. hernia strangul'ted.	May 17, 1903.	May 14, 1906.	Operation successful.
27	15793	42, F.	L. F. hernia.	Feb. 27, 1905.	May 22, 1906.	Operation successful; patient constipated since operation, and not before.
28	15820	46, F.	R. and L. F. hernia.	March 6, 1905.	May 19, 1906.	Completely cured.
29	17528	55, M.	E. Ing. and F. hernia.	Dec. 13, 1905.	May 18, 1906.	Cure perfect; improved in health after operation.
30	16314	31, F.	R. F. hernia.	May 51, 1905.	May 18, 1906.	Perfectly well.

VII. DEGARMO'S METHOD.

1. Incision 2 to 3 inches long and parallel with and to inner side of femoral vessels.
2. Sac appears in the wound when the skin and superior fascia are incised.
3. Lift out mass by thumb forceps and blunt dissection.
4. Put traction on sac and ligate same and then it will retract within the abdominal cavity, leaving the femoral canal free from foreign tissue.
5. Open sac and carefully ligate adherent omentum and break up adhesions in case of adherent intestines.
6. Pass needle with strong catgut No. 2, through neck of sac and tie a second time.
7. Examine stump for bleeding vessels and not until then should the ends of the ligature be cut.
8. Close opening by pressing end of finger firmly into femoral opening under Poupart's ligament and passing a strong blunt needle through the ligament on the finger point.
9. Press the finger against ramus of pubes and see that vessels are out of the way, then pass point of needle fully down to the periosteum of pubic bone, taking up all tissues over it.
10. This constitutes the first stitch, but should not be tied until the others are placed in the same manner every one-fourth inch, until near the spine of pubes.
11. Now tie down and cut closely and close the fascia by plain catgut and the skin with buried catgut sutures to prevent any pocket formation.

VIII. HAMMESFAHR'S METHOD.

1. Resect femoral sac and reduce stump.
2. Drill three holes in upper margin of ramus from the slant upward so that the inner opening is close beneath the edge of the crest.
3. Pass strong silk around Poupart's ligament and then through the holes and tie them firmly.

It is, of course, impossible to review the extensive literature on this subject completely within the limits of this paper, but the references made above will, I think, serve for comparison. If the principle mentioned at the beginning of this paper is applicable to this condition, there can be no doubt that Socin's method is the only one which has value in the treatment of this definite class of cases. The accompanying table of my cases seems to support this view conclusively.

FIVE YEARS' EXPERIENCE WITH AN ORIGINAL FILIGREE INTENDED TO PREVENT AND TO CURE ABDOMINAL HERNIÆ.*

WILLARD BARTLETT, A.M., M.D.
ST. LOUIS, MO.

My use of the various filigrees in twenty-two cases has led to certain definite conclusions with reference to the mechanical side of the question.

1. A scar, no matter how thin, if prevented from stretching by embedded wires, constitutes a reliable, integral portion of the abdominal wall.

2. A ready-made filigree answers all possible requirements; hence, the construction of one in the wound constitutes an unnecessary prolongation of the operation.

3. Since scars tend to stretch laterally, the filigree need be made up of only cross wires, held together in the middle by one single-twisted strand, following the direction of the suture line.[1]

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

1. This arrangement, which I described in the Annals of Surgery, July, 1903, furnishes a network so supple that no resistance is offered to the natural pliability of the tissues. Only a single strand of No. 30 silver wire is used in weaving; hence, there are no sharp ends anywhere, while at the periphery are simply disconnected loops, into which scar tissue must grow.

The accompanying illustration will serve well to give an idea of this filigree, which I devised more than five years ago, and which I have used since that time with growing enthusiasm. To demonstrate the firm hold of new-formed scar tissue on the loops, I can do no better than quote an experiment described in the article just referred to.[1]

I opened up the abdominal wall of a small dog, separating the intact peritoneum from the overlying structures in the median line, where I embedded a small filigree. This small contrivance had only eight loops on each side, and projected out but three-fourths of an inch under the edge of the wound, not being sutured in position at all (to make the test the more severe). The recti were then sewn together over it with a continuous silver wire as were their anterior sheaths, the skin being united by interrupted sutures of silk. The animal was turned loose without a dressing of any kind, and from the second day he ran around as such animals are accustomed to do under ordinary circumstances, furnishing in this way what can well be considered a crucial test for this method of wound closure. At the expiration of four weeks, the wounds having healed completely, I cut down at one side of the original incision, until the loops forming one edge of the filigree came into view; into four of these I fastened hooks, and then it was only after a tension measured by eleven pounds on a spring balance had been applied, that I managed to loosen the hold which four loops on the opposite side had secured. It was by no means possible to lift the filigree from its bed; the best that could be done was to tear it to pieces, so firmly had Nature anchored it. While such an experiment, of course, does not actually indicate the amount of resistance which such an appliance will manifest against the intra-abdominal pressure directed against its median portion and at right angles to the direction of its cross-wires, still, this is enough to demonstrate that forty-eight such loops, forming both sides of the filigree, which I have used on the human subject, will certainly manifest sufficient resistance for all practical purposes, when it requires a full eleven pounds to dislodge only four of them.

My interest in this has been redoubled since learning that C. H. Mayo has employed it with success and since the publication of Joseph Wiener, Jr.'s, convincing article,[2] in which he reported seven patients cured by its use, and thus gave the latest substantial impetus to this division of surgery. This is especially interesting in view of the fact that a New York surgeon, Dr. Willy Meyer, was the first to call the attention of American surgeons to the possibilities offered by the filigree in general.

OPERATIVE TECHNIC.

It seems that no exact procedure has been developed, applicable to all cases of postoperative hernia, in which a filigree is desirable. After considerable experience with all methods of attacking the problem, I unhesitatingly advised the following as a routine:

1. Dissect away the old skin scar, which is usually wide, irregular and unsightly; then there will be only one mark, instead of two, left.

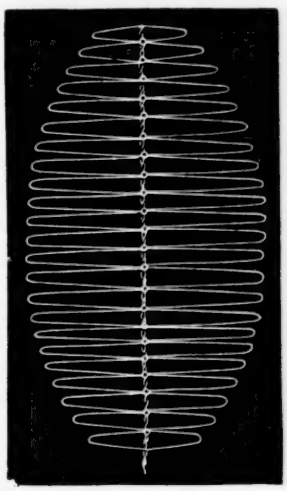
2. Widely open the sac, reduce its contents, divide adhesions and excise omentum where necessary. I will state, in passing, that I do not pay as much attention to adhesions within the sac as formerly, but usually content myself with reducing everything where possible. No doubt, these connective-tissue attachments reform to a great extent, even when they are disturbed at the operation.

3. With the operator's hand inside the sac, it is very easy to dissect it away from the components of the wall, to which its exterior is attached; otherwise this is sometimes a most perplexing task. The excess of the sac is next trimmed away, and the resulting edges sutured in much the same manner as would be done in closing the healthy peritoneum.

4. It is now exceedingly easy to separate peritoneum and transversalis fascia from the posterior surface of the muscles; on the bed thus formed by fascia, a filigree, slightly longer than the opening, is placed and held in position by two sutures at its extremities. If the defect is a large one, it will now be found impossible to reunite the edges of any structure, but the skin; however, this does not matter. All that is necessary is that the edges of the network should be covered for a short distance. I usually employ a continuous catgut strand, with which muscle and fibrous sheaths are partially drawn together in a single layer. Over this, fat and skin are closed in the ordinary manner. The patient is kept in bed for from two to three weeks, according to the necessities of the individual case, and a binder is worn for two or three weeks more.

I am fully convinced that a segment of the abdominal wall, consisting of peritoneum, wire filigree and skin, is just as good as any other, provided the operation has been properly done.

A FILIGREE IN SUPPURATING WOUNDS.



Having experienced an accidental infection in Case 12, which had no effect on the permanent healing or on the efficiency of the filigree, it suggested itself to me that the attempt be made to forestall the frequent ruptures, which we see in drained abdominal lesions, by embodying one of these contrivances in the granulations which close such defects. I succeeded perfectly in one instance, and report the following cases to show that no ill-effect on repair is exerted by the presence of such a foreign body.

CASE 15.—Oct. 31, 1905, I implanted a small filigree just beneath the aponeurosis of a twelve-year-old boy, on whom I had operated for purulent appendicitis two weeks previous to that time. His wound gaped widely, and I hoped to prevent, thereby, a hernia, having in mind the favorable result in Case 12, in which a filigree healed in, after infection had taken place. A secondary pus focus became manifest deep in the abdomen, however, a short time after this, and the patient's physician, being unable to reach me at the time, removed the filigree in draining the lesion, hence, this case proves nothing along the line under discussion.

CASE 2.—Mr. V., aged 23, was operated on Nov. 4, 1905. Three months previous to this time an assistant of mine had drained an appendicitis pus focus with temporary benefit. On the date mentioned, however, I had to operate for a reoccurrence of the trouble, and, of course, made it my first duty to remove the small offending organ, if it can be so termed. Foul-smelling pus was encountered, and the edges of the wound were more or less soiled. Since an accidental infection had had no ill-effect on the ultimate healing in of one filigree, I implanted one in this abdominal wall, which had been extensively damaged, as a result of two incisions in the same neighborhood. I used one 2¼ by 4 inches in size, embedding it beneath the aponeurosis in the usual way, leaving little strips of gauze between the individual wires. The patient had considerable abdominal trouble following the operation, and there was a dis-

2. Annals of Surgery, April, 1906.

charge of large quantities of pus from the peritoneal cavity, through the wound, as well as through a tube, which I inserted low down in the middle line; but eight days later, he was normal again and eighteen days after the procedure he went home. A few ends of the wire became displaced and had to be clipped off at various times, still, almost the whole of the filigree became permanently embedded in one of the foulest abdominal wounds that I have ever seen, and the wall at that site is as firm to-day as it ever was. The patient is hard at work, and apparently in first-class condition.

CASE 21.—May 18, 1906, Mrs. B., aged 33, was operated on for postoperative hernia at the outer border of the right rectus muscle, low down. Sept. 12, 1905, her appendix had been removed with consequent infection of the wound. She had remained in bed six weeks, and had worn a binder until the present time; still, a hernia appeared as soon as she got up, and gradually increased until it was as large as a cocoanut, when I first saw her. At the operation, I found an interstitial hernia, the sac lying between the aponeurosis and the muscles beneath. In this case, I succeeded in reuniting the muscles, on which a large filigree was placed, but the edges of the aponeurosis could not be approximated by more than an inch. Two days later there was evidences of infection, and her physician opened up the wound. The wound is now fully healed, with the filigree in place.

PROPHYLACTIC USE OF A FILIGREE.

Many operations damage the abdominal muscles or nerves, or both, to such an extent as to make postoperative hernia likely, in spite of the most careful suturing. Especially is this true in view of an occupation which necessitates great muscular effort on the patient's part or in view of a pathologic condition which may later be attended by an increase of intra-abdominal tension. Four cases in point illustrate the considerations which lead me to attempt to forestall any such accident.

CASE 17.—Jan. 25, 1906, I did a modified Talma operation on Mr. K., aged 51, for cirrhosis of the liver. There had been an immense collection of fluid in his peritoneal cavity, hence, having in mind Case 2, in which a reaccumulation after a similar procedure resulted in a postoperative hernia, I determined, if possible, to forestall such an occurence, by the use of a filigree. My incision was two inches to the right of the median line, at about the height of the umbilicus, hence, after reuniting the peritoneum and transversalis fascia, I placed a filigree 2¼ inches by 4 inches in size, on the suture line and closed the muscles, as well as the other structures of the abdominal wall, over it. Unfortunately, this case proves nothing, so far as the point under discussion is concerned, since two days after the operation the patient gradually commenced to sink, with every evidence of a deepening autointoxication, and died in a few hours.

CASE 18.—Jan. 28, 1906, I operated on Mr. D., a butcher, aged 57, for gallstone disease. The operation, which included the removal of his gall bladder, for hydrops, as well as a fibrous appendix, necessitated a rather long incision through the right rectus muscle. Having in view the nature of his occupation, in the pursuit of which he was accustomed to lift heavy objects, I naturally was reminded of the likelihood of postoperative hernia in this region, knowing that I had severed some of the abdominal nerves. As usual, a strip of gauze, covered by rubber, was tied to the stump of the cystic duct, and this brought out at the upper angle of the wound. In the rest of its extent, the peritoneum and transversalis fascia were closed, and on the bed thus formed, a filigree of three by four inches was laid. Over it the other structures of the wall were sewn up as usual. Nine days later the gauze was removed, and the canal closed as kindly as though no foreign substance lay at the bottom of the wound. Still nine days later, the patient went home and in two months after the operation he was following his usual vocation, without the slightest bulging or discomfort. At present his abdominal wall is absolutely intact.

CASE 19.—Feb. 19, 1906, Mr. G., aged 49, a blacksmith, was operated on for gallstone disease. The incision was two inches to the right of the middle line, just above the umbilicus. In this case both the appendix and gall bladder had to be removed, consequently, this incision, too, was longer than would otherwise have been made, and, as a matter of course, abdominal nerves were severed. A gauze wick was carried down to the cystic duct, but this time in order that the wound might be closed as firmly as possible, the drain was brought out through a supplementary stab two inches to the right of the incision. A filigree, 2¼ by 4 inches in size, was placed beneath the muscles. Seven days later the drain was withdrawn, and fourteen days after the operation, the patient went home. To-day he is working hard at his forge, and I am encouraged to believe that his abdomen will remain sound, even though he does the hardest kind of labor and that after serious damage was done by the knife.

CASE 20.—Feb. 27, 1906, I operated on Mrs. S. for appendicitis and in this case had to make an incision through the right rectus muscle, very much longer than I would have otherwise done, but it was impossible to make a definite diagnosis before undertakiing her relief by operative means. Hence, I had to examine the gall bladder, stomach, duodenum and appendix, which accounts for the fact that a long incision was made and several abdominal nerves injured. She is a woman who has to work hard, hence, I felt that I must give her every guarantee I could against postoperative hernia. I implanted a filigree, as long as the incision, beneath the muscles, and the wound healed without the slightest difficulty, no drainage being used. She was sitting up on the seventeenth day, went home in due time, and when I saw her recently, assured me that she was perfectly well and free from discomfort.

One point which should be urged in connection with the prophylactic use of the filigree has especial reference to drained cases. In such instances I am decidedly averse on general principles to carrying a drain out through the original incision, the greater portion of which is to be blocked by this contrivance. It seems to me far better to make a stab wound to one side or the other, through which the drain may be conducted without, in any way, disturbing the solidity of the weakest portion of the wall which it is desired to strengthen.

THE RELATION OF THE FILIGREE TO PREGNANCY.

One of the first questions asked me in connection with my early cases was: "What will become of the filigree when it is exposed to greatly increased pressure from within, and what effect will it have on a possible pregnancy?" I am happy to reply, after conclusive evidence of its value has accumulated, that no test has proven too severe and that it has produced no untoward effect under such unusual circumstances. The following cases, I think, will substantiate my claims:

CASE 2.—Exactly five years ago, namely, June 8, 1901, I implanted a large filigree in the abdominal wall of a man suffering from median ventral hernia, as a result of omentopexy, which had been performed six months previously. In spite of the fact that a considerable amount of transudation into the peritoneum took place after the operation, the filigree has done its work to the present day, and the scar is just as strong as it ever was, except at the upper angle of the four-inch wound, which I failed to cover properly, as a result of inexperience, this being only my second case. As soon as the man got up, a small bulging occurred at the site mentioned, but this has not increased, and his abdominal wall is now otherwise sound, five years later.

CASE 10.—July 18, 1903, I implanted a filigree in the median line of Mrs. F's anterior abdominal wall, for a hernia, which had resulted from a drainage operation, done six months previously for peritoneal tuberculosis. This earlier procedure had been carried out by an excellent surgeon, whose good technic I gladly recognized. Still, the exudate reaccumulated, and, with it, a hernia appeared. I implanted a filigree on the recti muscles, which were brought together with silver wire, but I failed to unite the anterior sheaths of these muscles by, at least, half an inch. Still, the hernia was completely cured,

and this in spite of the fact that the fluid reaccumulated, and the tuberculous manifestations became so apparent that I had to reopen the abdomen, April, 1904. Without disturbing the wire, I removed the tuberculous Fallopian tubes, by way of definitely curing the disease. The patient is well and doing housework at the present time.

CASE 12.—Sept. 29, 1903, Mrs. S., 36 years of age, was operated on. Fifteen years before this time she had been a subject of a laparatomy, low down in the middle line. A year later a small hernia had appeared, this growing until I saw her, when it was about the size of an infant's head. The diameter of the ring was 3½ inches, and her symptoms were those of colic and weakness in the abdominal wall. I placed a large filigree behind the recti muscles, and owing to an infection of the wound, she had to remain in bed four and one-half weeks. A fistula continued to discharge for some weeks after she was up, but eventually it healed without further treatment. Since that time she has gone through the ordeal of childbirth, but her abdominal wall is intact at the present date.

This case being of more importance than any other in my series, it gives me great satisfaction to be able to quote a letter just received from Dr. Hugo Ehrenfest, assistant professor of obstetrics, St. Louis University. The date is May 26, 1906.

Complying with your request I give you an abstract of the history of Mrs. Annie S., from my records at the Jewish Hospital Dispensary.

Seen by me for the first time in the Dispensary, Nov. 27, 1905, 35 years old, married nineteen years. Had seven full-term children and four miscarriages.

One full-term pregnancy within the first two years of married life. About sixteen years ago laparotomy was performed on her in New York (indication unknown). Five weeks after laparotomy she became pregnant, aborted ten weeks later. About one year later a confinement at normal end of pregnancy. About two years after laparotomy small hernia began to appear in scar. The hernia gradually increased in size with the subsequent pregnancies. Dr. Bartlett repaired hernia, placing a large silver screen into abdominal wall, Sept. 29, 1903.

Fourteen months after this operation she became pregnant and gave birth to a full-term child just five weeks ago.

During this last pregnancy some dragging pain appeared in the scar at about fifth month, very gradually increasing up to the time of labor, but never very severe. Confinement spontaneous and normal, according to her statement, the easiest confinement she ever had. Since confinement no pain whatever, except some slight backache. Patient now has some difficulty in using her abdominal muscles. When she lies down flat on her back on the examination table, or tries to move in this position, she has to move slowly, otherwise, she has severe pain in the scar. Palpation absolutely negative. There is no hernia, no tenderness in scar, screen can not be palpated.

INFLUENCE OF DEVELOPMENT.

A filigree implanted in the abdominal wall of a growing person has been productive of no ill effect thus far. However, I have but one observation to report, and that of limited value, since it has been in place only seventeen months.

CASE 13.—Jan. 6, 1905, Helen M., aged 10, was operated on for a small, but troublesome hernia, which had resulted from an operation, done by me, six months previous to this time. I had removed her appendix and drained a local peritonitis with gauze and rubber tubes, no sutures having been used in the abdominal wall. After the first operation, she had remained in bed for five weeks and wore a tight binder continuously, still, four months after the operation a bulging, the size of a hickorynut, appeared, gradually increasing. At the second operation, a filigree, two inches by five in size, was placed between the aponeurosis and the muscles beneath; sixteen days later she was out of bed. Four days after this she went home, and has remained well to the present time.

Of my twenty-two patients, four (Nos. 1, 5, 6, 17) have died since the operation of causes not connected with the implantation of the filigree. These individuals lived six months, three months, ten days, and two days, respectively, and in no instance did the filigree fail to perform its functions. Of the other eighteen, I lost track of two, operated on in 1903; one of them (Case 7), six months after operation; the other (Case 11), two months after, both being in perfect condition when last heard from. I have traced the remaining sixteen up to the present time. One of them was operated on in 1901; two, in 1902; four, in 1903; four, in 1905, and five, in 1906. In one of these (Case 15), the family physician took it on himself to pull out the filigree, as above mentioned, without my knowledge, so this is manifestly not a fair trial. The other patients have remained well to the present time, without exception, and no one of them complains of symptoms occasioned by the presence of the appliance.

An experience with the silver filigree in twenty-two cases during the last five years has served to convince me that its use offers an easy and efficacious means of solving a problem which must otherwise prove very difficult in many instances. My results, detailed above, have proved, I trust, that the contrivance does not absolutely need to have a clean wound for its bed and will also withstand the strain incident to pregnancy and other rigorous conditions. Not one of my patients died as a result of its use, not a single filigree of the twenty-two gave cause for removal, nor have I a failure to record after its use.

CASE 1.—This case, with the six which follow, were very fully described in the *Annals of Surgery*, July, 1903. Five years ago on the fifth of last April, I excised the greater part of the lateral abdominal wall in a girl three and one-half years old for sarcoma, bridging over the resultant large defect with a silver filigree. The child died three and one-half months later, of a recurrence *in situ*. During the little girl's life, however, there was, at no time, the slightest bulging of the wound, nor any discomfort from the presence of the filigree.

CASE 2.—June 8, 1901, I implanted a filigree for the cure of a postoperative hernia, after an omentopexy of six months before. A very small bulging appeared at the upper end of the wound as soon as the patient got out of bed, otherwise, the impaired area is still perfect in the rest of its extent.

CASE 3.—July 1, 1902, I used a filigree on a young woman of eighteen, who suffered from a postoperative hernia, which had resulted from the drainage of an appendix lesion. I saw her recently, and she now has none of her old symptoms, nor does the wound bulge in any part of it. She is employed in a store, is on her feet constantly, goes up and down stairs; in fact, deports herself in every way, as a healthy woman should, whereas, previously, she was a helpless invalid.

CASE 4.—July 28, 1902, I did an operation in every way similar to that in Case 3, and for the same cause, on a short, stout man, aged 55. At that time he was totally incapacitated for work. He has had no trouble at all since the filigree was used, and at present has as sound an abdominal wall on the right side as on the left. This is especially noteworthy, in view of the fact that the muscles were flabby, and that there was a great deal of adipose tissue at the time I operated.

CASE 5.—Aug. 12, 1902, I operated for umbilical hernia, on a man, aged 67, using two filigrees, one behind and one in front of the rectus muscles. The man, however, died suddenly, ten days later, of what appeared to be a pulmonary embolism, hence, no use can be made of this result so far as statistics are concerned.

CASE 6.—Jan. 20, 1903, I excised from a woman, aged 43, the skin, aponeurosis and fascia lata from the right inguinal and femoral regions, over a space about as large as a man's hand, for cancer. The remaining structures of the abdominal

wall bulged so much under the influence of extirpation, while the patient was on the table, that I at once decided to implant a filigree. This was done and a hernia, no doubt, was prevented. The patient died five and a half months later, however, of general carcinoma, hence, this case teaches us very little as regards ultimate results.

CASE 7.—Feb. 28, 1903, I operated on a young woman, aged 22, who had had the lower right abdominal wall considerably damaged, as the result of a kick. A filigree was inserted under the shelving edge of Poupart's ligament and the aponeurosis, with the result that the patient, who had been unable to stand erect for two months before the operation, was now enabled to go about her usual vocation without discomfort. Six months later she was in perfect condition, except for a feeling of stiffness in the scar. Since that time I have been unable to get news from her.

CASE 8[3].—June 22, 1903, I operated on an unmarried woman, aged 51, who had suffered for twelve years with an immense interstitial hernia. This had worked its way through the right inguinal opening, up between the aponeurosis and the internal oblique. The two structures were so attenuated, as the result of long-continued pressure, that I considered them hardly sufficient to subserve their normal functions after the removal of the sac; hence, a filigree was implanted between them with most satisfactory results. I have just heard from this patient, and learned that she has had absolutely no sign of weakness in the abdominal wall, or, in fact, no other symptom from the presence of the large mass of silver wire, since the operation, three years ago.

CASE 9.—June 29, 1903, I was permitted by Dr. Deutsch, of this city, to offer some suggestions as to the treatment with a filigree of a patient on whom he operated on that date. The patient was a man, aged 36, who had been subjected to drainage for appendicitis ten years before. Within a year after the first operation a hernia had appeared in the wound, and during the succeeding nine years he had been the subject of constant abdominal colic. A large filigree was placed on the muscles which could be brought together and the aponeurosis sewed partially over this. I saw this man a year later, and there was absolutely no bulging, although, it might be added, that some of the continuous silver wire suture, which had been used in everything but the skin, was attempting to work its way to the surface. I now use catgut in sewing the various layers and have, in consequence, no more of these experiences, disagreeable to the patient and surgeon alike. I heard from this patient two years after the operation for the last time. He was, at that time, still possessed of an intact abdominal wall.

CASE 10.—July 18, 1903, I implanted a filigree in Mrs. F's lower median abdominal wall for the repair of a hernia, which had resulted from a drainage operation, undertaken six months earlier for tuberculosis of the peritoneum. At present she is perfectly well and hard at work.

CASE 11.—July 20, 1903, I treated, by this procedure, one of the most remarkable postoperative herniæ that I have ever seen. The patient, a woman, aged 43, had been subjected to hysterectomy six years before I saw her. She had spent six months in bed before her drained wound healed, but no sooner got up than a small bulging appeared. This gradually increased in size, until the date mentioned, when I found the low median ring, more than four inches in all diameters, and approximately round. This patient was a thin woman, with a board-like abdominal wall, which rendered it manifestly impossible to close the opening by any form of autoplasty. I implanted an immense filigree beneath the recti muscles, which were drawn out of their sheaths sufficiently to permit of them being brought together in the middle line, although the fibrous structures in front could not be approximated by any means. Two months after the operation she was in perfect physical condition, but has not been heard from since that time.[4]

CASE 12.—Sept. 29, 1903, a large filigree was placed low down in the median line of Mrs. S's abdominal wall. She had been operated on fifteen years before, and had an immense hernia. She was seen recently and is in perfect condition.

CASE 13.—June 6, 1905, I implanted a filigree in the lateral abdominal wall of Helen M., aged 10, on whom I had operated for purulent appendicitis six months previously. Extensive drainage had been used, and a small hernia had appeared almost as soon as she got up from bed. Since the second operation she has remained entirely cured, until the present time.

CASE 14.—Oct. 13, 1905, I operated on Mrs. H., aged 52, who was afflicted by a fibromyoma of the uterus, about the size of a man's head, also by an umbilical hernia, about the size of an orange. In addition to this, there was a prolapse of the posterior vaginal wall, all three conditions being treated at one sitting. Through a median incision, which extended from the pubis and around one side of the umbilical ring, I excised this latter, and removed the abdominal growth. In order to close the abdomen at all I had to remove the omentum, which had lain in the hernial sac. In order to make the closure more simple, I simply placed an immense filigree beneath the edges of the thin atrophic recti muscles. It was impossible to bring these together, without too much tension, so I contented myself with merely carrying them a short distance over the ends of the wire loops, so that the filigree would remain in its bed, and over all I closed the skin. In this way it will be readily seen that I accomplished a very simple, and what has proven to be effectual, abdominal closure. In little more than two weeks this patient was up in a chair, and a few days later went home, the abdominal wound being perfectly solid.

CASE 15.—Oct. 31, 1905, I implanted a filigree beneath the aponeurosis of a boy, aged 12, on whom I had operated for purulent appendicitis two weeks earlier, the wound having been left wide open. His physician removed the filigree without my knowledge a few days later.

CASE 16.—Nov. 17, 1905, I implanted a filigree beneath the aponeurosis of Mr. V's abdominal wall. His appendix region had been drained three months before, but the cause of the trouble not removed. In taking out the appendix I damaged the wall to such an extent that I feared a hernia. Much pus was encountered, but, nevertheless, the contrivance healed in, with the result that he is now hard at work with a sound abdominal wall.

CASE 17.—Jan. 25, 1906, a large filigree was used on Mr. K., on whom I was operating for cirrhosis of the liver. He died two days later, however, and the case has no especial instructive features.

CASE 18.—Jan. 28, 1906, I implanted a filigree in Mr. D's abdominal wall, in order to forestall a hernia after a long incision for gall-bladder and appendix disease. At present he is engaged in lifting heavy weights, but, nevertheless, has remained perfectly well.

CASE 19.—Feb. 19, 1906, I operated on a blacksmith for gallstone and appendix disease. Fearing that a hernia would result, in the long incision I implanted a filligree in closing the abdomen. He is now working hard at the forge every day, and is in perfect condition.

CASE 20.—Feb. 27, 1906, I made a very long incision to the right of the rectus muscle in Mrs. S., the appendix was removed, and the higher structures examined. To forestall a hernia, a filigree was used in closing the wound. I saw her June 1, 1906, and know that she is in perfect condition.

CASE 21.—May 18, 1906, I used a filigree in the abdominal wall of Mrs. B., aged 33. In September, 1905, her appendix had been removed, the wound was infected and an immense hernia was caused. In spite of an infection, after my operation, the filigree has healed in place as though nothing had happened.

CASE 22.—May 9, 1906, I implanted in the abdominal wall of Mrs. L., a large filigree for the cure of a low median postoperative hernia. The abdomen had been opened seven years previous to this time, and an ovary removed. As soon as she got up from bed, she had a very weak feeling at the site of the incision and always wore a binder. Four years after the operation, a bulging appeared in the scar, which gradually increased in size until now it is as large as the head of a newborn infant. She felt that she had no support at that point.

3. Cases 8, 10 and 11 are very fully described in the Interstate Medical Journal, 1903, No. 9.

4. Cases 12 to 22, inclusive, as well as Case 9, are here reported for the first time.

she could not lift anything, and could not go upstairs. Her sufferings had made her a complete nervous wreck. On the date mentioned, I opened the sac, removed an immensely long appendix, and implanted a filigree beneath the muscles. Two weeks later she was up, but the next day a little pus and necrotic fat from her immensely thick abdominal wall came out at the lower end of the wound. There was no more trouble after this, however, and she is now in perfect condition.

DISCUSSION.

ON PAPERS OF DRS. OCHSNER AND BARTLETT.

DR. A. U. TUTTLE, Cambridge, Mass., said that about seven or eight years ago he read a paper on the insertion of silver wire in hernia, and that time operated on about fifteen patients. He used the wire in the treatment of ventral herniæ following appendicitis operations, also in umbilical, femoral and inguinal herniæ. Within a month of the present time he pulled out wire that had been breaking up in the patient for about six months, wire that had been put in six or seven years ago. On thinking the matter over he is satisfied that the silver wire is affected by the body juices as much as any other suture, but, perhaps, not quite so fast. After the wire had been placed in the body, whether deep or superficially, whether in a clean or in a suppurating wound, whether in a wound with primary healing or in one with secondary changes, it is only a question of a very short time when the wire becomes brittle, when it will break up and become absolutely valueless so far as holding the wound together is concerned. In regard to the question of recurrence of herniæ, the wire promotes a local irritation; sets up an increase in the connective tissue and scar formation, so that many of these cases have proved successes after the use of the wire. But the fact that silver wire produces local irritation and breaks up and comes out in fragments has been so universally noted that he thinks that after a comparatively short experience with it surgeons will see that some other suture must be used.

DR. A. H. FERGUSON, Chicago, stated that he has done operations for femoral herniæ according to various methods, finally by removing the sac and suturing Poupart's ligament and the falciform process to the pectineus muscle. But if Dr. Ochsner can show such excellent results by a still more simple process, surgeons will do well to discard all other procedures and follow his method. Dr. Ferguson has never seen a return after a radical operation for femoral hernia, either in any of his own cases or in those of others, so that the old operation probably will do as well as any other. With regard to getting at the hernia, he said that he makes his incision above Poupart's ligament parallel with it, about half an inch above it. He retracts the lower lip of the wound after exposing the ligament, then cuts through the thin fascia to Gimbernat's ligament. By this method the surgeon gets at once to the neck of the sac and with one sweep of the hand from within outward can turn out the sac and hernia on the palm of the hand. On the other hand, if he commences to dissect from the top of the hernia he will get adhesions. It will also be found that there are almost two sacs in femoral herniæ, the thin layer which covers the fat, and then the considerable layer of fat, before coming to the true sac. By going at it from above downward there will be no difficulty whatever. Every sac should always be opened. The sac should never be tied off without being opened. The other advantage of making this incision above is that the abdominal ring (external) is exposed and the surgeon can pass his finger through it and inspect the condition of the internal ring. There may be a deficiency there, which by opening up to the internal ring may be rectified and the formation of an oblique inguinal hernia prevented. Dr. Ferguson has seen several cases of oblique inguinal hernia appear on the same side that the femoral hernia was operated on.

DR. H. M. S. DAWBARN, New York, said that he was impressed with the fact that Dr. Ochsner agrees absolutely in his teachings with other surgeons who have studied this subject carefully. For example, Czerny, Nussbaum, Sewell, Barker, Ball, MacEwen, Bassini, Halstead and others have stated time and again that unless the sac is obliterated the hernia will return. That, Dr. Dawbarn said, is the reason Heaton, the first quack to advocate the cure of rupture without the knife, failed. Heaton emptied the sac, whether it was a femoral or an inguinal hernia, and then filled it, by means of a syringe and long hypodermic needle, with glycerite of tannin, which, acting as an irritant, caused a great exudate of fibrin, "Nature's glue," partly filling the sac and obstructing a return of the hernia. Six months afterward he had the results looked up and there was 100 per cent. of relapses. Little by little, the bowel produced absorption, by pressure from above, of this plug obstructing the entrance to the sac, and finally the original trouble was reproduced. Dr. Dawbarn said that he can see no advantage in doing away with the sac though he does approve of obliterating it as a cavity. It is a mass of vital tissue and it seems wise, he said, for that reason, after dissecting it loose to carry out the MacEwen principle to make use of it, drawing it by gathering string into a solid mass well above the level of Gimbernat's ligament, to oppose by its presence the entrance of a hernia into the beginning of the femoral canal. Dr. Ferguson has used this method three times without having a relapse, although the first patient operated on has not yet passed the three-year limit. His technic is as follows: After doing away with the sac in the manner mentioned above, he dissects the loose tissue off the front wall of the rectus, leaving the bare rectus sheath. Beginning nearly at the level of the umbilicus, a strip, two or three inches wide, of the front sheath of the rectus is dissected for a sufficient distance, leaving the rectus bare. He doubles that flap down on itself, tucks it beneath Poupart's ligament, through the external ring, and sews the lower edge of that sheath with chromicized suture material to the lower edge of the femoral ring and to the pectoralis muscle and fascia. Dr. Ferguson said that it seems remarkable that surgeons generally, both in inguinal and femoral herniæ should forget that excellent principle of military tactics, namely, that if one ever expects to whip the enemy he should never forget the line of retreat. To apply that principle to hernia operations, Dr. Ferguson always makes a large semicircular or horseshoe-shaped skin incision; convex upward in inguinal hernia, convex downward in femoral, instead of the customary straight-skin cuts. These curved incisions are so placed that they surround the place where, if ever a relapse should occur and a truss life be resumed, the pad should properly rest. Consequently, the pad never would have to chafe or press on a sear, as it must do, to the patients' discomfort, if the more usual method be employed, i. e., a straight cut, in attempting radical cure over the greatest prominence of the hernia.

DR. A. J. OCHSNER stated that all the cases he reported date back at least one year, and one fourteen years. He had a most interesting experience with silver wire. About fourteen years ago while visiting Dr. Max Schede's clinic in Hamburg, he found that Dr. Schede used silver wire very freely in preventing hernia after abdominal section and in operating for the radical cure of hernia. Next Dr. Ochsner visited the Edinburgh clinic, and in speaking to Mr. John Chien was told that thirty years before a surgeon in Edinburgh had put in silver wire, and they were still taking it out. Consequently, Dr. Ochsner has not used it. He finds that with the exception of the late results for hernia in which the ring was destroyed, either by the original injury or by the operation for the reduction of strangulation, or by some foolish operation, that almost no one seems to have had a recurrence, provided, as Dr. Dawbarn says, the sac and also the peritoneal fat have been thoroughly removed.

In regard to the similarity between inguinal and femoral hernia, he directed attention to the fact that about eighteen years ago Mr. William Anderson, of St. Thomas Hospital, London, began to operate on inguinal herniæ by simply removing the entire sac, ligating it and permitting the stump to retract and suturing the skin, and when Dr. Ochsner visited his clinic seven years later, Mr. Anderson had operated on some three hundred cases without a recurrence. After that, for a considerable period of time, until Dr. Ferguson's method was published, Dr. Ochsner operated on small and medium-sized inguinal herniæ, in which there was not a congenital deformity, in that manner on one side on all double herniæ and by the Bassini method on the other side. He found that neither

method was followed by an appreciable number of recurrences. Later on he made the Bassini on one side and the Ferguson on the other, and now he does the Ferguson operation altogether. But the principles mentioned must be present. Supposing the surgeon wishes to make an artificial vagina, or to keep open a rectum in which there is a stricture, he can not do it unless he lines it with mucous membrane. This principle does not always apply in umbilical hernia in the adult. In the infant where the canal is actually circular, in 97 per cent. of hernia in the adult, where the abdomen shortens umbilical hernia in the adult, where the abdomen shortens laterally, the opening is no longer circular, but becomes enlongated and the principle is abolished. These herniæ do not close by simply removing the sac.

HEREDITY AND ENVIRONMENT AS FACTORS IN THE LIFE AND DISEASES OF CHILDREN.*

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In the first chapter of Genesis and the eleventh verse it is written: "God said, Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit, after his kind, whose seed is in itself upon the earth, and it was so." In the twenty-first verse: "God created great whales and every living creature that moveth, which the waters brought forth abundantly, after their kind, and every winged fowl after his kind." In the twenty-fourth verse, also: "God said, Let the earth bring forth the living creature after his kind, cattle and creeping thing and beast of the earth after his kind, and it was so." And to confirm these statements, it is reiterated, in the twenty-fifth verse that: "God made the beast of the earth after his kind, and the cattle after their kind, and every thing that creepeth upon the earth after his kind; and God saw that it was good." Thus it was a fixed law that in order to avoid confusion, every living thing, whether it be plant or animal, shall produce offspring after its own kind, thus establishing the law of heredity, and also forming at the same time, abundant proof for those who believe in the so-called bathmic evolution.

While no one, from scientist down to the most ignorant casualist, denies the matter of heredity, or that we expect offspring to be like their ancestors, yet many biologists, as well as psychologists, have devised different and even antagonistic theories to account for heredity, and its correlative factor, environment. The firmness of the belief in heredity and its influential factors in determining offspring are especially shown when there appears an apparent exception to the law, that like produces like, or what we call variation. For instance, if an auburn-haired child with blue eyes makes its appearance in a family of dark-haired, dark-eyed parents and brothers and sisters, it causes general comment, and should all questions of legitimacy be settled favorably to the suspected, inquiry will at once be made as to the matter of atavism or reversion to previous ancestors. In order, however, that one may understand, as we proceed, a few definitions may not be out of the way. Heredity is usually defined as the law that accounts for the production of offspring like the ancestors, but as we have occasionally a variation from the ancestors, we usually study heredity and variation together. Variation is usually due to some disturbing factor, which modifies the workings of the law. Weismann, a German biologist of note, held to the theory that only inherent qualities can be transmitted to offspring, acquired characteristics and habits can not be transmitted. According to him, parents are merely trustees to hand down their commingled stocks to their offspring. The effect of training and education of parents can not be inherited by the children. This differs from the saying of the late Oliver Wendell Holmes, that if you want to make a scholar out of a child its training must begin 200 years before it is born. From bad stock, according to Weismann, can come only bad offspring, and if a member of such stock, through special training and education and the result of favorable environment, should prove an exception to his family, yet his offspring will inherit but the old taint, and none of his acquired good qualities. Darwin's views are similar, primarily stated, but when we read his "Descent of Man," his theory of evolution dependent on the two great factors, sexual selection and environment, we must see that in practice, Darwin believes in the transmission of acquired, as well as of inherent, characteristics.

The English philosopher, Locke, believed that all people are endowed with the same amount of qualities or inherent characteristics, and that with the same amount of work and application all could achieve the same results in any field. The very opposite views are held by Galton, as we see in his "Faculty and Education" and his great work on "Nature and Nurture." The latter is probably nearer right than Locke. Haeckel has views similar to Darwin's, and Lamarck is diametrically opposed to Weismann, and many instances can be quoted to prove his contentions. For instance, the matter of telegony is one of them, and, while mentioning the word, I will also define it: Telegony is the reversion in children of one parent to characteristics of a former mate. For instance, a mare, having been bred to a quagga, an animal striped similarly to a zebra, later, when bred again to a horse, produced a colt with the stripes of a quagga. So, also a bitch, that was bred with a mongrel had pups characteristic in color and other qualities similar to the mongrel, yet when bred to a pure-bred animal of her own kind gave birth to a litter, some of which were marked like her former mongrel mate. Numerous examples could be mentioned which can not be gainsaid. On the other hand, we know that the rite of circumcision has been practiced among the Jews for several thousands of years, yet no Jewish boys are born without foreskins. Shepherds, who amputate the tails of all lambs, and have done so for centuries, must still repeat the process to-day, as so far no bobtailed sheep are born. But, *per contra*, Brown-Séquard, who did many bizarre things and who created artificial epilepsy in guinea-pigs, had the pleasure of seeing epilepsy develop in the offspring, even to the third generation.

Among dogs, retrievers and setters seem to have transmitted their acquired education to their offspring, as a well-born retriever will invariably practice retrieving without being taught; hence it seems the quality of retrieving, originally taught his ancestors, was in this instance transmitted to him. Weismann to the contrary, notwithstanding, Brown-Séquard's epilepsy experiments form a valid excuse now for asking the question that will interest this Section, namely, Are diseases, like certain traits, inherited, that is, transmitted from ancestor to posterity? And, if so, have these diseases always existed in this particular tribe or family, or were they first acquired and then transmitted? If the latter, how can Weismann be right, who says acquired characteristics can

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

not be transmitted? Is there a taint of fatalism in such views that declare we can not change anything permanently, so that hereafter when a certain happy result is accomplished by environment, education and training we can not entrust it to reproduce itself, but must continually keep up the work of the same environment and training? If this were so, what is the use of the practice and study of eugenics, except as they repay us in immediate results?

According to the laws of heredity, if a father and a mother were in all respects exactly alike, and not taking into account theoretically their ancestors, then their offspring would exactly resemble them, and also each other. But this assumption is only to help us form the law of coefficients of heredity. Namely, if the quantity of a certain trait in the father were assumed to be one, and the same in the mother, we would expect the child to have the same trait in the same quantity, namely, one. But if one parent have this trait and the other only one-half, then we would expect the child to have only three-fourths, provided there is no prepotency existing in one parent or another in this especial trait. But—yes, but—any given person has, as far back as the tenth generation, a totality of 1,024 ancestors, including his parents, as can easily be shown by calculation. Now, all of these 1,024 have added their share of hereditary influences to his physical, mental, moral and psychical make-up, not to mention telegonic and bathmic influences, plus all the environments of Lamarck, Darwin and Haeckel. Mention of the word bathmic demands some definition. The word is from the Greek bathmos or basic; it refers to certain basic or inherent principles or characteristics existing in every individual to reproduce its own and to revert back to the reproduction of its primitive types, when not trammelled by environment or education or training. An illustration of bathmic evolution exists in the begonia and some other plants, a leaf of a begonia when planted in the ground takes root and grows and reproduces the entire plant, thus showing an inherent growth force. To illustrate more distinctly, no matter what seed is sown and under what circumstances or conditions, if it grows and reproduces at all, it will produce the same kind of organism that gave rise to the seed. By environment and education or training the horticulturist produced many varieties of apples by processes known as budding, grafting or pollenization, yet seed planted from these desirable varieties will revert to the original species, and all the acquired qualities will eventually be lost. Will this also be the case with human stock, rescued by social purity societies, prison reformers, eugenic matings of the social reformers, education of the proletariat, intermarriage of the plebeians with the patricians? If so, it will give the lie to those who claim that the continuous influx of Europeans, most of whom come from the lowest class of peasantry, is a direct benefit to the social melting pot of the earth, the United States of America, where live the greatest people on the earth—consisting of more than your 1,024 ancestors? Or have I taken for granted an aphorism whose truth is questionable and belongs not to the real truths, but the assumed ones, the *argumentum ad hominem*? If so, I have taken less for granted than many things on which rest a great number of the most ultra-scientific theories. Much of this reminds one of the contents of the witches' caldron in Macbeth:

> "Round about the caldron go;
> In the poisoned entrails throw
> Toad that under coldest stone,
> Days and nights has thirty one.
> Sweltered venom sleeping got,
> Boil then first i' the charmed pot;
> Double, double, toil and trouble;
> Fire burn and caldron bubble,
> Fillet of a fenny snake,
> In the caldron boil and bake;
> Eye of newt, and toe of frog,
> Wing of bat and tongue of dog,
> Adder's fork and blind worm's sting,
> Lizzard's leg and owlet's wing,
> For a charm of powerful trouble,
> Like a hell broth boil and bubble;
> Scale of dragon, tooth of wolf,
> Witches mummey, maw and gulf
> Of the ravinged salt-sea shark,
> Root of hemlock, digged i' the dark,
> Liver of blaspheming Jew,
> Gall of goat and slips of yew,
> Slivered in the moon's eclipse,
> Nose of Turk and Tartar's lips,
> Finger of a birth-strangled babe,
> Bitch delivered by a drab,
> Make the gruel thick and slab,
> And thereto a tiger's chaudron,
> For the ingredients of our caldron,
> Cook it with a baboon's blood,
> Then the charm is firm and good."

This is quite a mixture and smacks of polypharmacy, yet it is a mild and harmless mess when compared to the 1,024 that come to our shores as factors in that product, called the elect of the earth—Uncle Sam's children. Is it a wonder we still have wars, murders, theft, defalcation, social evils, rebate evils, insurance swindles, and crime in high places and low, when "the butcher, the baker and the candle-stick maker," aye, far worse indeed, commingle in marriage to form the ancestors of the coming nations of the earth? Man still makes "countless thousands mourn" as in the days of the plowboy of Ayr. My ultra-scientific friends may accuse me of making a mess of scientific things and poetry yet poetry is the very spirit of truth, and of poet and scientist the former has often proved the greater seer. I might prate more wisely of the pangenesis of Darwin with his theory of gemmules which collect in the reproductive cells, and may be called "undeveloped atoms," and how they are supposed to be transmitted from parent to child, where they are said to remain in embryo undeveloped and later under suitable conditions develop and give so-called transmitted characteristics to the offspring, the theory that helped Darwin out of many rough places in formulating his theories of heredity, but, as no one yet has seen one of Dalton's atoms, so no one has seen Darwin's gemmules, or undeveloped atoms, so you see even the scientist goes begging at times for hypotheses when he is short on facts. Weismann, dissatisfied with the theory of gemmules, conceived that a germ-plasm, which was supposed by him to be a substance contained within each cell and a part of which after transmission to the offspring was never entirely used up, but transmitted to the next generation, and so on, in order to account for the continuity of the germ-plasm through ages and generations. We know cells, we know their nuclei or nucleoli, and their network and frame work, but we have never know germ-plasm, that has hitherto escaped us, though we courted it with aniline stain and acetic acid. One may as well quote poetry as such science.

The same is true of the theory of gametes and the applications of algebra, the formulæ of the calculus to establish the variant coefficients, the study of hypothetical zygotes, the elusive doctrine of Lloyd Morgan's metakinesis, the "something which is not yet consciousness, but which may develop into consciousness." All

these theories and others too numerous to mention are often met with solid cold facts that are hard to harmonize. We may ask why do we continually seek to improve existing conditions, why teach or instruct, if all of it must continually be done over again, if nothing good has a continuance or abiding place, when we must fear overeducation and overtraining in one as much as undertraining in another? Will our striving ever attain some permanency? It does seem so at least! Can we improve bad stock without at the same time causing deterioration of the good stock when we practice sexual selection? Has the good and beautiful any prepotency over the bad and the ugly? Is an average better than two classes, the good and the bad? Or must we in so-called stirpiculture finally aim at the destruction of the bad by the good? Is not that a somewhat questionable procedure by the good? One is reminded, even if not forcibly of a conversation between an impertinent inquirer into the history of the ancestry of Dumas the younger. Said he: "I understand your father was a mulatto?" "Yes," answered Dumas. "And your grandfather?" Dumas answered, "He was a negro." "And his ancestor?" still probed the inquisitor. "He was an ape," said Dumas; "you see my ancestry begins where yours ends." Also another incident comes to my memory in the matter of improving our race by destroying the bad and vicious. Long ago I read an investigation into the doctrine of original sin by that great Bostonian who invented the hub around which the universe spins, the story of Elsie Venner, in which the question arose as to the right to exist, for instance, of the cats and the rats, yet the especial object in life of the cats was to destroy the rats. Did he mean that the good should destroy the bad? So far as the laws of Nature are concerned, the matter of pity has no place in her code. If an innocent babe should violate the law of gravity on a window sill of one of our skyscrapers, no good angel will interpose and intercept the falling innocent to prevent its horrid death and thus stay a tragedy in the breast of its mother. So, I think, when Nature herself is slow in making selection and survival of the fittest, man should hasten the process by the aid of environment. It may be foreign to the letter of this paper to include what I wish to say to you, but it may be useful to do so, and utility may be a reasonable excuse for any transgression of a theory. I think it would be right if, by legal enactment, the defective, the degenerate and the vicious could be so treated that procreation from such stock would be an impossibility. The researches of Dugdale remind us of the notable case of the Juke family of New York, who furnished in their progeny 1,200 people, most of whom were paupers, thieves or prostitutes, and who cost the Empire State, in trials, prisons and almshouse relief, no less than one and a quarter million dollars. How much property, misery, crime, sorrow and worry could have been saved if that old fisherman, drunkard and libertine, Juke, could have been emasculated before he set up that dynasty of crime and vice so rich in offspring, the spawn of corruption?

Our adolescent youth should have it impressed on them not to form partnerships in life with the descendants of the vicious, for it is literally true that "as we sow, so shall we reap." If parents would exercise as much of their prerogative in selecting marriage partners for their children from this standpoint as they usually do from that of worldly means and social standing, our race would be more desirable in future years than it has ever been since the disobedience of the first pair. I am sure our pseudo-reformers may mean well, but certainly do much harm, when they train the semi-idiotic and the feeble-minded and attempt the reformation of vicious criminals—the vicious youths in our reformatories and others—if they do not at the same time see to it that these hordes do not reproduce their own kind as the sands of the seashore. In doing as they now do, they only arouse their Nemesis, as Frankenstein created the monster without heart or conscience, that strangled without compunction, all that was dear to him on earth. The educated imbeciles and reformed criminals breed, if not prevented, like flies and rats. They even marry the good, if not the wise, who know not their antecedents, and thus dilute the human race with vice and degeneracy.

In the study of heredity we observe that the biologist and physicist often overlap boundaries with the psychologist, yet it is not speculating in theories that will lead us out of the realm of error into that of light so much as aiming at practical results in the study of child life that will produce the ideal boy and man, as well as the perfect girl and woman. The human embryo originates from a spermatozoön that differs very little from that of the horse, dog, ape, worm, fish or fowl, and in its history of prenatal life apparently passes through all the evolutionary forms of the various lower animals. As an analogue we may say the child in its growth and social development passes up through all the various stages of civilization from the most brutal and primitive savage to the highest forms of ideal existence. May this not by a form of atavism account for some of the usually unaccountable origins of crime, murders, thefts, the desire for tramping, sea roving, etc.? I ask, but do not answer. Despite the dictum of Weismann, that acquired characteristics are not transmissible from ancestor to offspring, the consensus of opinion of philosopher, philanthropist and statesman, of scientist and sage, is that Weismann is wrong so far as the practical results of education and training are concerned. If so, it gives pediatrists courage to go on in their good work, not only in combating and treating diseases in children, but in preventing, by proper advice and training, disease tendencies, be they diseases of the body only or those of the mind and psychic existence. These, then, are the lessons we can draw from such a study, whether we hold with Weismann that by eternal vigilance we shall obtain the prize or by holding the converse we can, by a joyous optimism, hope to see the fruits of our labors accumulate in that perfect man and woman we may see, even though only from the Pisgah of our hopes.

If Weismann be correct, if the bad by the environments of education and training can be made good, though bad stock can not be converted into good stock, then we see how grave a responsibility rests at present on every one who has to consider the problems relating to state endowments of education, the making and administering of poor laws, the conduct of charities which yearly spend immense sums. In all these problems the blind social instinct and the individual bias form strong factors in our judgment. Yet these very problems are the ones which, affecting the whole future of society, its stability and efficiency, require us, as good citizens, to understand and to obey the laws of healthy social development. The examples we have considered will not prove futile, nor its lessons worthless, even should Weismann's views, after all, be wrong. It is plain that in social problems such as I have referred to, the laws of

heredity, whatever they may be, must certainly influence our judgment. The conduct of parent to child and of society to all its members can never be placed on permanent bases unless regard be paid to what science has to tell us of the fundamental problems of inheritance. The theory of evolution is not merely a passive intellectual view of Nature; it applies to man in his communities as it applies to all forms of life. It teaches us the art of living, of building up stable and great nations, and is as important to statesmen and philanthropists in council as for the scientist in his laboratory or the naturalist in the field. The laboratory experiments of a biologist may have a greater weight in practical life than all the theories of Plato, Hegel or Schleiermacher.

The scientific classification of facts, biologic or historical, the observation of their correlation and sequence, the resulting absolute as opposed to individual judgment, these are the sole means by which we can reach truth in such a vital social question as that of heredity.

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DISCUSSION.

DR. F. A. RHODES, Pittsburg, said that notable writers are diametrically opposite in their conclusions. The question will never be solved until we are able to tell what life is. Some years ago he formulated the definition that animal life (the only life with which we are intimately acquainted) is a correlation of irritable tissues. We may have in our body organs which are apparently healthy, but there may be one small organ, e. g., the pituitary body, which is diseased, and although the condition may be unknown, there is a great loss in correlation of the entire body. In regard to the investigations mentioned by Dr. Wahrer the most recent commentators are of the opinion that the results of some of the experiments are not as given by the investigator himself; that many mistakes have been made in the conclusions. The investigations in the animal kingdom at the present time are very interesting. We accept the conclusions of Burbank for the vegetable kingdom; but as in the animal kingdom the high and low forms of life are very different, so there is still a greater difference between the vegetable and animal forms of life.

That which concerns physicians most is the transmission of characteristics of physical conditions from the parent to the child, which will be for the betterment of the community. Many teach that the child who is born in the hovel of parents who are drunkards or degenerates will be a degenerate; not because of the environments, but because of the parentage. This he does not accept. While we should accept the teaching of Dr. Holmes on the preparation of a child many years in advance of its birth, yet he believes that the environment in which we live has much to do with what we ourselves or our children shall be. An illustration of this is seen in a young man who has passed from the country to the city. He has been virtuous and all the community has considered him such. When he reaches the city and becomes associated with companions of bad habits he may change completely. If the young man had the acquired characteristics which were stable and which would be permanent throughout his life, why should he, when placed in different environment, become different? Dr. Rhodes thinks children will be in accord with the environments in which they live. He studies this subject for the pleasure it gives, but is no nearer the solution at the present time than when he began, nor does he ever expect to be.

DR. D. S. HANSON, Cleveland, Ohio, called attention to the rapid changes due to environment. For instance, it takes years and years of careful selection of seed, as in raising corn, and requires good soil to produce an ear of corn with the requisite number of seeds to cover the cob. Yet that good seed, planted successfully for a number of years, if placed in poor soil will produce a corn-cob not covered with seed. In other words, poor environment will soon destroy all that was gained by heredity. This will work out also in the animal kingdom. We see horses bred for years and a great speed developed. If such a horse is put into a plow and given the same surroundings as an ordinary horse and all training stopped, in the course of two or three generations there will be a breed incapable of development as were the former ones. In other words, environment makes rapid changes, but the changes of heredity are slow.

DR. R. B. GILBERT, Louisville, Ky., agreed that the subject of maternal impressions is a big one. He believes that it is well established that accidents to the fetus in utero result from impressions made on the mother or even from traumatisms. He had hoped that Dr. Wahrer would make it plain just how these maternal impressions exist and what is the physiologic law governing them.

DR. G. E. ROBBINS, Chillicothe, Ohio, said that he can not believe in heredity further than as a reproductive function. He can not but feel that it is environment that develops the race as we see it. If this were not true we would not be so careful of our children. As parents, said he, we are extremely careful how we rear them and how they are placed. Outside of the purely physical characteristics that may be transmitted he has no faith in heredity, but he does believe in environment.

DR. M. E. DUNNING, Newburgh, N. Y., referred to the children of the blind and deaf. Blindness is much less frequently transmitted to the offspring than deafness. More parents are born deaf than blind. A few years ago in certain statistics it was found that about 10 per cent. of the children were born blind and that the majority of parents had acquired their blindness through accident or disease. It was found that the blindness which had been acquired by the parents was transmitted so seldom to the offspring that it seemed almost an accident when it did occur.

DR. WAHRER said his paper was certainly liable to misconceptions. He wanted to make himself clear on the point of maternal impressions. He does not believe in them in the usual understanding of the term, and they can not be substantiated except by the most careless, unscientific, hear-say evidence. The first thing many mothers ask is, "Doctor, is the child marked?" If a child is born with a deformity some one is sure to believe that the father or mother has been guilty of some sin or indiscretion. Why should the innocent one be punished? Dr. Wahrer does not believe in the idea, and the trend of medical education is away from it.

His paper was not intended to be a full treatise on heredity. It has been said that certain diseases are hereditary, but this idea is fifty years behind the time. Tuberculosis is not hereditary. We don't know whether cancer is inherited. The same thing is true of many diseases of the child. He said a study of this subject by every pediatrist would give him a different viewpoint on many things pertaining to the chld and would be to the mutual betterment of the child and its medical attendant.

A FURTHER CONTRIBUTION TO THE STUDY OF STOOLS OF STARCH-FED INFANTS.*

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The work was undertaken with a view to adding to our information of the digestive capacity of infants for starch foods, a subject on which we have had many and varying expressions of opinion, based on clinical observations.

All the infants on whom tests were made were inmates of the New York Infant Asylum. The advantage of making such a study in institution children is obvious, when we remember that the feeding of such patients (the amount of starch given, for example) can here be kept in perfect control. Further, the test is more se-

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

vere, for the reason that the institution child does not possess the vigor and vitality of those more fortunately situated.

The study comprises the observations made on eighty-seven children, 677 stool examinations having been made. Because of defective technic and errors in the early examinations, which our time allowance does not permit us to discuss at this time, the findings in twenty-seven children, comprising 353 examinations, are excluded.

The report to which we will call your attention covers observations on sixty children, 324 examinations having been made. The stools were collected as follows: One ounce tin ointment boxes with the child's name pasted on the cover were given the nurse in charge. A close watch was kept on the children, who were so grouped as to make this possible. As soon as an evacuation occurred, a portion of the stool was placed in the tin box and sent to the laboratory. It was our intention to have at least one examination of a stool on five successive days from each patient.

In order to make the test a severe one, raw barley flour was used for the feeding which was cooked one and one-half hours. In some cases barley water formed the milk diluent; in others it was given plain as the only nutriment.

The delicacy of the iodin test for starch is much greater than is generally supposed. A starch solution, 1 to 300,000, is given by Hill as the possibility of the iodin test. In familiarizing ourselves with the color changes, using starch solutions of various strengths, we found that a solution, 1 to 10,000, reacted markedly to iodin.

The method which we found the most reliable and which was used exclusively in the sixty cases was that known as the von Jaksch test. A considerable portion of the stool, a piece the size of a pea or larger, was placed in two drachms of water, boiled and shaken so as thoroughly to disintegrate the fecal particles. A few drops of Lugol's solution were then added and the solution was filtered and cooled. If starch is present, the characteristic blue color appears. Filtration of the solution appeared to make but little difference as to the delicacy or reliability of the test. In the cases in which starch was not found, several portions of the stool were examined in order to make the examination thorough.

The ages of the sixty children were as follows: Seven were under 4 weeks; thirteen were between 1 and 3 months; fifteen were between 3 and 6 months; eighteen were between 6 and 9 months; seven were between 9 and 12 months; twenty-five were in good health; thirty-five were delicate, below normal weight and vitality. Of these thirty-five, four had bronchopneumonia and one had nasal diphtheria and was removed from the institution. Fourteen had acute diarrhea, three hereditary syphilis, three athrepsia, one sepsis, three acute bronchitis and three marasmus. In two, one examination was made; in one, three examinations were made; in one, four examinations were made; in thirty-five, five examinations were made; in six, six examinations were made; in three, seven examinations were made; in two, eight examinations were made; in ten, nine examinations were made.

In thirty-three children the examinations were persistently negative to starch. Of these, 22 were 6 months old or older, 11 being under 6 months. Among those under 6 months, one was 19 days old; he took 142 grains of flour daily, the stool being negative to the two examinations made on two successive days. One was 21 days old; he took 225 grains every twenty-four hours. One was 5 months and 26 days old; he was given 375 grains daily. Five examinations were made, all being negative. One was five and a half months of age. For three days 450 grains were given. It was then thought wise to increase the flour and test his digestive capacity. Accordingly, 1,560 grains were given daily for two days. The stools failed to respond to the iodin test. One was 1 month and 22 days old. The patient's condition was thin and he had diarrhea. Four hundred grains were given the first day followed by a negative stool. Three hundred and ninety grains were given on four successive days, the stools remaining negative. One was 1 month and 19 days old; 185 grains were given for three days; stools negative. The flour was then increased to 300 grains for two days; the stools remained negative. In 14 of these negative cases there was moderate diarrhea and in one severe diarrhea.

Seven cases were persistently positive. One was a well-developed 8-day-old child, weighing 8 pounds and 5 ounces. For two days he received 255 grains daily, the stool showing positive to both tests. For the next three days he was given 127 grains daily; the stools still showed positive. The flour was then reduced so that only 63 grains were given in 24 hours. The stools showed positive during the two days of its administration. Another was a child 9 months of age with acute diarrhea. But 250 grains were given daily; five examinations on five successive days were made and all were positive. Another was that of a three and a half months old child; there was a moderate diarrhea; three to four passages daily. Six hundred grains were given daily; five examinations were made on five successive days and all were persistently positive. One had a septic cord. Among the seven persistently positive two had diarrhea and four were very young, under 1 month.

The remaining twenty children showed sometimes positive, sometimes negative, sometimes red at the different examinations. As to those which reacted red we will refer later. Eight were positive in the majority of the examinations and are recorded as showing a positive tendency. All of these had diarrhea. Twelve were negative in the majority of the examinations on the different days and are recorded as showing a negative tendency. Eight of these had diarrhea. An interesting case in this group was a child 2 months of age who had diarrhea. On the first day he received 300 grains with an absence of milk from the diet. The starch reaction was marked. On the second day he received 200 grains; starch still showed positive. On the third day 300 grains were given and repeated on three successive days. As a result of cutting off the milk diet the stools improved and the examinations thereafter for three days were negative for starch.

Of the twenty-seven who showed starch at some time seven were under 1 month old, five were between 1 and 2 months old, seven were between 2 and 4 months old, making nineteen under 4 months old; five were between 4 and 6 months old, three were between 9 and 12 months old.

Among the sixty cases, 41 showed a good starch capacity; of these, 11 had diarrhea and 19 showed poor starch capacity. Of these, one was 8 days old; the others had diarrhea or were marasmic.

In the testing of solutions of starch of different strengths, plain and dextrinized, with iodin it was found that a starch solution which was boiled, diastase added

and then cooled, produced a pinkish red color on the addition of iodin, this being the reaction of dextrin to iodin.

"The first step in the digestion of starch is the formation of soluble starch, amylodextrin. In the second stage the soluble starch is decomposed into maltose and a substance giving a red color with iodin. This substance has been given the name of erythrodextrin by Brücke. In the third stage this erythrodextrin is further split up into a dextrin, which gives no coloration with iodin and is called achroodextrin and a further quantity of maltose. In short, the digestion of starch consists in breaking up by several more or less well defined stages through a process of gradual hydrolysis of a very complex molecule into simpler ones. Starch and water and the presence of a suitable ferment yield maltose and the different dextrins."

The dextrin reaction was present at times in ten children, having been found in 18 examinations. We interpret this reaction as meaning that dextrin was present in the stool, representing an incomplete starch digestion, due, perhaps, to the too rapid passage of the fecal contents, as it was present in several of the diarrhea cases; or it was due to a deficiency in diastatic enzyme, not enough being present in the intestine to produce a complete splitting up of the starch product.

That some of the starch may have undergone fermentation in the intestine is, of course, possible. That it was not a factor of great consequence is proven in that the child did not evidence any more bowel distension than usual. Dextrin was present at times in a considerable number of the examinations, showing a partial conversion due to the presence of starch enzyme. Further, the children were maintained in fair nutrition during the period of the exclusive meal diet. Several of the meal-fed infants in whom the stools were negative to iodin were delicate and of very tender age. This led us to undertake the study of the stools of infants fed exclusively on the breast with a view to determine, if possible, the presence of starch enzyme in the feces in the very young. Of the stools in 26 children, 161 tests were made and starch enzyme found in all. The ages were: Under 2 weeks, 22; between 1 and 2 months, 3; one, the oldest child, was 2½ months old.*

DISCUSSION.

DR. SAMUEL AMBERG, Baltimore, said that the starch reaction in the feces being changed with the change of food may perhaps be explained by the fact that the bacterial flora of the intestines is dependent to a large extent on the food given, and that some of the intestinal bacteria certainly possess amylolyptic power, although sugar may not be produced. It has been shown that the pancreas of young infants contains diastase. In regard to the disappearance of starch in the intestinal canal, besides the ferments produced by the organism, the bacterial flora of the intestines must be taken into consideration.

DR. GODFREY R. PISEK, New York City, said that many children are brought to the dispensaries who have been fed on starches in the early weeks and have done well. Those who believe in the modification of cow's milk with cereals want to use this method not only after six months, but before six months, if it is proved that the starch will be digested. As Dr. Kerley pointed out, there are cases that will fail here as they will fail with milk alone and we should not condemn from isolated observations.

DR. THOMAS S. SOUTHWORTH, New York City, said that the most valuable findings were those in which no starch was found in the stools, because they clearly demonstrated that starch solutions can be taken care of by the young infant. It was also shown that none of the children were disturbed by the starch, even though, apparently, some starch reaction was obtained in the stools. Dr. Ker'ey mentioned the length of time which he cooked the raw starch, 1½ hours. This suggests the remark that there has been of late a more general awakening to the fact that all starch preparations used as foods should be cooked longer than has usually been the custom. Recently one of the agents for a prepared food told him that they had changed the minimum of time for cooking this food from six to thirty minutes.

DR. T. W. KILMER, New York City, remarked that there should be no age limit in regard to the giving of starch, the quantity of milk or cream a baby should take, or in regard to its clothing. Some babies at one month can digest more cream than others at nine. More attention should be paid to the stools to see whether the baby is digesting the starch.

DR. A. H. WENTWORTH, Boston, said that although the modification of milk has been brought down to a fraction, it is unnecessary. If it had been necessary all the babies would have died years ago. The average baby does well on a rough mixture. It would be foolish in the early months of the baby's life to give it more digestive work than it can do and, therefore, the milk should be modified in a manner to suit that digestion. Similarly, the starch should be reduced to an amount that could be taken care of by the baby. The time for the child to become gradually accustomed to a modified diet is during the early weeks of life.

DR. KERLEY said that feeding babies in country districts is an entirely different matter from feeding them in larger cities. In the country they have fresh milk, fresh air and usually a healthy child to start with, without the poor heredity and unfavorable environment which often obtains in city children. There is really no comparison to be made between feeding children under the two conditions.

* A complete report of this work was read before the American Pediatric Society at Atlantic City, June 1, 1906, and will appear later in the Archives of Pediatrics and in the transactions of that society.

THE PATHOLOGY OF BILE.*

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That the bile is altered as a result of disease was noticed by Tacconi[1] as far back as 1740. He remarked that in fever the bile changes in color and taste. Tacconi's observations were very few and superficial. Much more accurate were the studies of Uffelmann[2] on the subject, carried out in 1874. He had the good fortune to make observations on the flow of bile from a patient with a biliary fistula who had an attack of pneumonia and noticed that the secretion of bile ceased with the onset of the disease. The same patient was later taken sick with dysentery. Again there was a disturbance of the activity of the liver. The secretion of bile almost stopped, he reported, with the manifestation of the disease.

Similar observations on the human subject were made more recently by Noel Paton and J. M. Balfour.[3] About ten weeks after cholecystotomy for gallstones was performed the patient had a rise of temperature, which peristed for thirteen days. During the pyrexia the secretion of bile fell from 650 c.c. to 475 c.c. in twenty-four hours. There was likewise a marked diminution in the excretion of total solids. Paton and Balfour report a reduction from 9.8 gm. to 3.709 gm. in twenty-four

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

* From the Department of Physiologic Chemistry, Columbia University.

1. Tacconi: "De raris quibusdam hepatis aliorumque viscerum affectibus observationes," Bologna, 1740.

2. Uffelman: "Ein physiologisch-pathologischer Versuch," Deutsch. Arch. f. klin. Med., 1874, vol. xiv, p. 241.

3. Paton, Noel, and Balfour, J. M.: "Reports from the Laboratory of the Royal College of Physicians," Edinburgh, 1891, vol. iii, pp. 191 to 240.

hours, or a decrease to 37 per cent. of the normal output. After a second febrile attack, which occurred later, the difference between the rate of secretion of bile in health and in disease was even more pronounced. During the non-febrile interval the average amount of bile secreted in twenty-four hours was 592 c.c. During the febrile period it fell to 238 c.c. in twenty-four hours, a reduction of about 60 per cent. The solid constituents suffered almost a like reduction of about 65 per cent. It is of interest to observe that it was the organic constituents alone that suffered diminution during fever in the case reported. The inorganic constituents remained unchanged, or were but little diminished. Among other changes in the bile during fever that were noticed by these two observers was a diminution or total absence of color.

That fever induces important changes in the character of the bile is made further probable by chemical studies of bile removed from the gall bladder at autopsy. Thus Charcot,[4] in his work on the diseases of the liver and kidneys, states that the bile salts are diminished in typhoid, in tuberculosis, pneumonia, hepatitis of tropical countries, while fat, leucin and tryosin are increased in quantity.

The studies of clinicians and pathologists on the changes in the secretion and composition of the bile in fever have received some confirmation by experiments on animals. Pisenti[5] carried out a series of observations on dogs provided with permanent gall-bladder fistulas in which pyrexia was induced by the subcutaneous injection of putrid material or by confining the animal under observation in a chamber kept at a temperature raised above the normal, but still compatible with life. In dogs with septic fever he found a marked diminution in the quantity of bile secreted as well as a reduction of the total solids as compared with the controls. Two days after the onset of fever the secretion was improved both as regards amount and composition, but it never reached in these respects the controls obtained in afebrile condition. Diminished secretion of bile was likewise noticed in dogs with "retention fever," but the percentage composition of solids was greater than in normal bile. In both cases the changes induced in the bile seemed to be due to functional derangement and not to structural changes of the liver, no lesions having been found by Pisenti on microscopic examination of the organ.

The study of the secretion of the bile in malignant disease has received but scant attention. It is, therefore, of interest to note the results obtained by Yeo and Herroun.[6] These observers reported rather careful studies they made on the bile of a patient with a biliary fistula who had carcinoma of the common bile duct. Their protocols show markedly diminished secretion of bile. In 24 hours only 375 c.c. of bile were collected, the total solids of which amounted to 1.24 per cent. They also estimated the quantity of bile salts and found 0.165 per cent. of sodium glycocholate and 0.055 per cent. of sodium taurocholate. As in the case reported by Noel Paton and Balfour,[3] the quantity of inorganic matter showed no deviation from the normal. That the bile is influenced in cancer of the liver is also maintained by Charcot.[4] He stated that in this condition the bile is poorer in bile salts.

4. Charcot: "Leçons sur les Maladies de Foie et des Reins," 1877, p. 83.
5. Pisenti: "Ueber die Veranderungen der Gallen absonderung während des Fiebers," Arch. f. Exp. Path. u. Pharm., 1886, vol. xxi, p. 218.
6. Yeo and Herroun: Jour. of Physiol., 1884, vol. v, p. 116.

In the investigations on the bile considered thus far, it will be noticed that the study of the bile pigments was not given much attention. Considerable work was done on this subject by clinicians who investigated the subject experimentally on animals with the object of elucidating the pathology of jaundice, and by pathologists who were occasionally attracted by the unusual appearance of the bile in some cases examined postmortem.

To pathologists belongs the credit of the interesting observations that in certain forms of disease the widest range of variation in color is possible. Thus Frerichs[7] describes the contents of the gall bladder in atrophic cirrhosis as a pale liquid rich in mucus. Ritter[8] found colorless bile in the gall bladder of cases of fatty degeneration of the liver. Andral,[9] in his clinic, recorded pigmentary acholia in fatty degeneration of the liver, extreme atrophy or hypertrophy of the liver. Pouchet,[10] who examined the bile at autopsy in a number of patients who died of cholera, stated that the bile was colorless. Moxon[11] found the same in a case of stricture of the hepatic duct. Hanot[12] and his pupil Letienne[13] claimed to have found white bile in tuberculosis of the liver. According to the latter observers, the color of human bile is subject to considerable variations. In 53 cases examined postmortem, the bile in some was black, in some brown, yellowish green or red An increased amount of bile pigment, as is well known, has been found in conditions accompanied by rapid destruction of red blood cells. Thus Stadelmann[14] found relatively great quantities of bile pigment in the bile after poisoning animals with arsenuretted hydrogen, toluylendiamin and phosphorus. In the human subject, Rosenstein[15] and von Noorden[16] maintained that the bile is richer in pigments in certain forms of cirrhosis of the liver. The truth of this statement was questioned by Minkowski.[15] If the enterogenic origin of urobilin from bile pigment be accepted, the presence of large quantities of urobilin in the urine found in a variety of conditions, as after hemorrhage, in cardiac diseases, intoxication, certain forms of infectious diseases and fever, will serve as indirect proof of the increased formation and elimination of bile pigments in disease.

The presence of abnormal constituents in the bile has been looked for by several investigators who made observations on man and animals in various pathologic conditions during life as well as postmortem. Thus, according to Bouchard,[17] unaltered blood pigments have been found after poisoning rabbits with pyrogallol, potassium chlorate, aniline, toluylendiamin, arsenic and phosphorus. After the injection of phloridzin in dogs subcutaneously, intraperitoneally or into the portal vein, Levene[18] found considerable quantities of dextrose in the bile. Mosler[19] found a glycocholia after intravenous in-

7. Frerichs: "Untersuchungen über die Galle," Hanover, 1845.
8. Ritter: Compt. Rend., 1872, vol. lxxiv, p. 814.
9. Andral: Clinique Médicale, 1839, vol. ii, p. 275.
10. Pouchet: Compt. Rend. de l'Acad. des Sciences, 1884, vol. xcix, p. 847; also 1885, vol. c, p. 220.
11. Moxon: Trans. Path. Soc., London, 1873, vol. xxiv, p. 129.
12. Hanot: Semaine Médicale, 1895, No. 23, p. 197.
13. Letienne: "De la Bile et l'Etat Pathologique," Paris, 1891.
14. Stadelmann: Arch. f. Exp. Path. u. Pharm., 1881, vol. xiv, p. 231; also 1882, vol. xv, p. 336; 1882, vol. xvi, pp. 118 and 221.
15. Minkowski: "Störung der Leberfunction. Ergebnisse der Allgemeinen Pathologie," Lubarsch und Ostritag, 1895, vol. ii, p. 679.
16. von Noorden: "Lehrbuch der Path. der Stoffwechsels," 1893, p. 286.
17. Bouchard: Traite de Pathologie, 1895, vol. i, p. 966.
18. Levene: Jour. Exp. Med., 1897, vol. ii, p. 107.
19. Mosler: "Untersuchungen über den Ubergang von Stoffen aus dem Blute in die Galle," Giessen, 1857.

jection of 65 to 80 gm. dextrose into dogs. He also found cane sugar in the bile when injected in a similar way. In bile of dogs with pancreas diabetes, Brauer[20] detected considerable quantities of dextrose. According to Naunyn,[21] dextrose was present in the bile of rabbits in which puncture diabetes was induced. He also reported the presence of dextrose in the bile of normal rabbits. According to Charcot,[4] after ligating the ureters in birds, uric acid in the form of sodium urates was found in considerable quantities in the bile. Traces of urea have been found in normal bile of animals, as well as in the human bile, but no systematic quantitative determinations of any value have been made in health or disease.

The presence of albumin in the bile under pathologic conditions has been noticed by several observers. Boisson[22] was probably among the earliest observers to discover albumin in the bile. He was the first writer who used the term albuminocholia to designate this condition. Lehmann,[23] who examined, postmortem, bile from the gall bladder in 100 cases, found albumin in nutmeg liver, fatty liver and parenchymatous hepatitis. Pouchet[24] found albumin in the bile of six patients who died of cholera. Among recent observers may be mentioned Brauer,[20] who has reported similar findings in typhus and parenchymatous nephritis. Hallauer[25] analyzed the bile in a number of cases. He found albumin in 5 out of 6 cases of cloudy swelling of the liver, associated with pneumonia, miliary tuberculosis and sepsis, also in some cases of fatty liver, none in cirrhosis of the liver. Experimentally, in rabbits, he obtained an albuminocholia after intravenous injection of albumose. According to Mosler,[19] albumin was found in bile after the intravenous injection of large quantities of water.

Within the past two years several other investigations on the experimental production of albuminocholia have been described. Brauer[20] reported the presence of albumin in the bile of dogs after giving ethyl alcohol and small quantities (3 to 5 c.c.) of amyl alcohol. At his suggestion, Pilzecker[26] carried out a similar study of the bile from dogs with permanent gall-bladder fistulas after poisoning with phosphorus and arsenic. His result seemed to corroborate the work of Brauer. Another interesting statement both observers made is thus: Albumin passes more readily into the bile than it does into the urine. In this connection attention might be called to the work of Hallauer and Gürber,[27] who, after the intravenous injection of casein solution into rabbits, recovered considerable quantities of it in the bile as well as in the urine. They also found albumin in the urine and in the bile.

While not disputing the possibility of albuminocholia under the conditions of the experiments of Brauer and Pilzecker, it seems they have not proved that the albumin they found in the bile was eliminated by the liver. It is just as possible that it was due to inflammation of the gall-bladder and biliary passages which they observed on autopsy. To reduce the possibility of error from this source a number of experiments were carried out on dogs, each of which was under anesthesia with temporary biliary fistula. The neck of the gall bladder in each case was ligated previous to the introduction of a cannula into the common bile duct. The bile was collected and tested for albumin according to Brauer's method. Either amyl alcohol or ethyl alcohol alone or a mixture of the two was injected into the stomach or small intestines. The bile collected was, as from the controls, tested for albumin.

The results obtained were not uniform. Distinct cloudiness on boiling appeared in the bile of one experiment before and after poisoning with amyl alcohol. On the other hand, in another experiment the bile remained perfectly clear on boiling before and even after injection of amyl alcohol. After administration of small quantities of amyl alcohol, 5 c.c., etc., there was no albuminocholia. Only after the injection of 20 to 30 c.c. did the bile become distinctly cloudy on boiling after slight acidification with acetic acid. In none of the experiments carried out as indicated were found more than traces of albumin in the bile. One experiment on a dog poisoned with ricin was an exception. The dog received two subcutaneous injections of ricin, 1 mg. per kilo, in 3 days. He was found dead the day after the last injection. The bile removed from the gall bladder showed the presence of a considerable quantity of albumin.

It seems probable, therefore, that the albuminocholia after poisoning with ethyl alcohol or amyl alcohol, as observed in animals with permanent fistulas, might have been due to irritation of the bladder and only perhaps slightly to lesions in the liver. The question whether albumin passes more readily into the bile than it does into the urine was also studied. The results in every instance examined showed considerable quantities of albumin in the urine after poisoning with amyl alcohol.

A few experiments on rabbits have also been undertaken. Cantharidin or arsenic was injected subcutaneously until albuminuria or hematuria appeared. A biliary fistula was then made and bile collected. In none of these experiments was albumin found in the bile.

Finally, I refer to some studies on the toxicity of bile obtained in pathologic conditions. Pouchet,[24] whose work on the subject was quoted previously, found that the bile in cholera is highly toxic for frogs. On making a chemical examination he claims to have isolated the poison which is in the nature of a pyridin base. Recently Meltzer and I[28] found, in the course of our investigations on the toxicity of bile of various animals, that the bile of the same animal is more toxic after double nephrectomy than before the kidneys were removed. We also noticed that the exciting element of the bile is the one which becomes more predominant after removal of the kidneys.[29]

20. Brauer: Ztschr. f. Physiolog. Chem., 1903-1904, vol. xl, p. 182.
21. Naunyn: Arch. f. Exp. Path. u. Pharm., 1874, vol. iii, p. 167.
22. Boisson: "De la Bile, de ses Varietes Physiologiques et ses Alterations Morbides," Montpellier, 1844.
23. Lehmann: Centrbl. f. Med. Wiss., 1867, vol. v, p. 172.
24. Pouchet: Compt. Rend., 1885, vol. c, p. 220.
25. Hallauer: "Verhandlunger der Physik. med. Ges," Würzburg, 1904, p. 186.
26. Pilzecker: Ztschr. f. Physiolog. Chem., 1904, vol. xli, p. 57.
27. Hallauer und Gürber: Ztschr. f. Biol., 1904, vol. xiv, p. 372.
28. Meltzer and Salant: Jour. Exp. Med., 1906, vol. viii, No. 1, p. 140.
29. For additional literature the reader is referred to: Fauconneau-Dufresene: "La Bile et ses Maladies," Mem. de l'academie de med., 1847, vol. xiii, p. 136; Gorup-Besanez: "Untersuchungen über die Galle," Hanover, 1845; Thomas: Dissertation, Strassberg, 1896; Terrier: Bull. de l'acad. de Med., 1890; Kleefeld: Ueber die Funktion, Operation und Sektions der Gallenblase, Strassburg, 1894; Affanassiew; Pflüger's Arch. f. Geol. Physiolog., 1882-3, vol. xxx, p. 424; Affanassiew; Virchow's Archiv., 1884, vol. xcviii, p. 460; Tarchanoff: Arch. f. Ges. Physiolog., 1874, vol. ix, p. 329.

Gastric Syphilis.—G. E. Armstrong, *Montreal Medical Journal*, June, reports a case of serpiginous ulcer of the stomach, probably of syphilitic origin, successfully removed by operation after the failure of medical treatment. The patient three years after the operation was in perfect health, of standard weight and free from indigestion.

TUBERCULOSIS OF AN ADENOMYOMA OF THE UTERUS.

WITH A PATHOLOGIC REPORT.*

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That tumors in general are not subject to invasion by bacteria, other than those of the pyogenic group, is well known. The simultaneous occurrence of carcinoma and tuberculosis in an organ or tissue is occasionally reported, but the invasion of other tumors by the tubercle bacillus is very unusual. This is especially true of uterine myomata which are seldom involved in even the most extensive tuberculous infections of the adjacent mucosa. The case here reported is of interest not merely on account of the rarity of the condition, but also because of the absence of tuberculosis in the mucosa of the general uterine cavity with but a slight lesion in one tube. The tuberculosis of the myoma and that of the tube were secondary to tuberculosis of the lung, but apparently independent of one another and due to infection through the blood stream. As a fairly exhaustive review of the literature fails to reveal an analogous condition our observation appears to be worthy of record. A detailed report follows:

Clinical History.—H. E., aged 20, an only child, unmarried, was admitted to the Cohoes Hospital January 10, 1906. Her family history offers several points worthy of note. Her mother presents evidence of tabes and her father died at forty-six of a valvular lesion of the heart which formed part of the plainly luetic condition. Her grandfather, on the mother's side, had syphilis, and the grandmother succumbed to general paralysis. There is no direct tuberculous heredity.

Personal History.—The patient had measles in early childhood and showed some indications of hereditary syphilis, viz.: A slowly-healing ulcer of right leg and a nose of the saddle type.

Menstruation beginning at sixteen, has always been very scanty, irregular and tardy, with occasional amenorrhea for periods of five to six months. An epistaxis, apparently vicarious, had been frequent. Menstruation, at first painless, later became more difficult. At no time had there been leucorrhea. Dec. 14, 1904, a pelvic examination showed the uterus to be very small, of the infantile type, and lying in a moderate degree of retrodeviation, with some tenderness in the region of the left ovary.

July 30, 1904, the patient had a sudden attack of hemoptysis. A careful physical examination gave evidence of a localized adhesive pleuritis of the left apex, overlying an area of tuberculosis, involving a considerable part of the apex and extending down and outward toward the axillary line. After a sojourn at the seashore and in the mountains she was considerably improved in general health, while the physical signs had manifestly retroceded and in part entirely disappeared. The following winter (1904) was passed in the mountains and she returned in April still more improved. July 15, 1905, she had a second very slight hemoptysis, but improved rapidly, gaining by November 13 twenty-nine pounds.

Present Illness.—Abruptly, about November 21, she began to complain of soreness and pain in the hypogastric region. The pain was dull in character, intermittent, returning especially in the latter part of the day, and exaggerated by fatigue and standing. The patient had not menstruated in five months. As the pain continued unabated for a week, without any appearance of the menstrual flow, she was advised to return home. On bimanual examination, the cervix was found deviated toward the pubes and the Douglas cul-de-sac occupied by the enlarged fundus of the retroverted uterus. The fundus gave the sensation of a firm mass of about the size of a mandarin and somewhat irregular in shape, being larger on the left, and very slightly movable. The left lateral cul-de-sac was also occupied by another swelling less firm and less voluminous, having neither the fibromatous woody feeling of the main tumor nor the fluctuation of a cyst; this second enlargement seemed almost contiguous with the uterine body. The condition of the right adnexa could not be defined. These conditions were not present at the previous examination, eleven months before.

At this stage, the pulmonary condition presented a marked change. While no advancement of the disease was evident in the left apex and the corresponding axillary region, two new foci had appeared; one in the left base posteriorly and the other in the right interscapular space, close to the spinal column.

December 15, menstruation occurred and lasted five days. After a few days interruption, there was again some slight bloody discharge. This discharge kept on thereafter, more or less irregularly, until the time of operation. The pains became gradually more intense, finally requiring the daily use of some sedative for their control.

January 5, the size of the pelvic mass was considered to have increased materially. On that same date, a few tubercle bacilli with a great number of diplococci and streptococci were found in the sputum. Three previous examinations of the sputum had been negative.

Much concern was naturally entertained as to the exact nature of the uterine condition. The first diagnosis was simply one of a solid tumor, probably a fibromyoma, occupying the posterior wall of the uterus. A closer study, however, of all the evidence suggested the possibility of a tuberculous lesion of the uterus, and this possibility was carefully explained to the family.

Of course, on account of their rare occurrence, the diagnosis of any of the pelvic forms of tuberculosis is seldom made until the abdomen is opened, and even then not infrequently only after the specimen is in the hands of the pathologist. Uterine tuberculosis has no well-defined symptomatology. In the present instance, if a probable diagnosis of a tuberculous condition of the uterine growth was arrived at before operation, it is willingly conceded that we expected to find as well a similar condition of the adnexa and of the peritoneum; that is, a general abdominal tuberculosis. In holding this view, we were influenced by the existing pulmonary condition and by abdominal symptoms which predominated especially during the very last weeks. When the abdomen was opened, it was a surprise, therefore, to find that, aside from numerous and extensive adhesions of an inflammatory nature, the general as well as the pelvic peritoneum was free from tuberculosis.

Surgical Report.—January 11, laparotomy; median incision nine centimeters long. A coil of small intestine was found drawn down into the pelvis and firmly adherent close to the right uterine cornu, evidently accounting for the pain in the abdomen which had been so striking a feature. Both ovaries were fibrocystic. The uterine body, enlarged to the size of an orange, lay deeply in Douglas' cul-de-sac and was so matted up in adhesions that a subtotal hysterectomy was performed. The appendix was inspected and, being healthy, was left undisturbed.

Convalescence was uneventful, and the patient reported April 16, that she had gained ten pounds in weight and was in the best of health.

PATHOLOGIC REPORT BY DR. RICHARD M. PEARCE.

Gross Description.—The specimen consists of a uterus with its appendages. The former is exceedingly firm and almost globular in shape, measuring 17.5 cm. in circumference just below the level of the attachment of the Fallopian tubes and 19.5 cm. over fundus and cervix. The cervix protrudes beyond the globular body as a short, thin, circular canal, 0.8 cm. long and 0.4 cm. thick. Its edges are smooth, rounded and gray-

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

ish-white in color. The peritoneal surfaces are covered more or less uniformly by course fibrous adhesions. On section the entire length of the uterus from cervix to fundus is 6.8 cm., the greatest thickness, antero-posteriorly, 5 cm. The body itself is 6 cm. in length. The anterior wall is normal in appearance, though slightly thickened, and measures 1.4 cm. at the mid portion of the uterine cavity. The fundus is 1.7 cm. in thickness. The posterior wall is occupied by a globular mass extending from the median line of the fundus to the internal orifice of the cervix (5.2 cm.) and laterally from the peritoneum to the uterine cavity (4 cm.). This mass is composed of firm, dense, greyish-white tissue having a whorl-like appearance and resembling the structure of myoma in a general way, but riddled everywhere by cavities varying from those miliary in size to those 0.5 cm. in diameter. From these cavities escapes a thick, yellow, more or less tenacious pus. The walls of the larger cavities, after the escape of the fluid pus, are seen to be lined by a yellow, soft granular material, suggestive of caseation. These areas extend to within two millimeters of the peritoneal surface and toward the median line approach and apparently involve the mucosa. The cervix is not involved. The uterine canal is 4.7 cm. long, 1.2 cm. of which is cervical. It is greatly narrowed and 2 cm. below the fundus is almost entirely obliterated. In or beneath the mucosa covering the lower portion of the tumor are numerous closely-set, fine, yellowish miliary areas. These do not involve the mucosa of the anterior wall nor that of the cervix.

The tubes and areas are atrophied. The left tube and ovary are bound to the uterus by fibrous adhesions; the right is free and has a smooth peritoneal covering. Each ovary contains a few small cysts.

Bacteriology.—Cover glass preparations of material from the cavities in the tumor, stained by methylene blue, show pus cells which take the stain well, many poorly-staining necrotic cells, and much granular detritus but no micro-organisms. Attempts to demonstrate the tubercle bacillus and the gonococcus are negative.

Agar, blood serum and hydrocele-agar tubes are sterile after 72 hours.

HISTOLOGIC DESCRIPTION.

Sections Passing Through Uterine Wall and Tumor.—The greater portion of such show a diffuse tuberculous process in a tissue composed of smooth muscle fibers and containing widely scattered tubular glands. The uterine wall proper, measured beneath the cover glass, is 3 mm. in thickness. No tubercles are present in the slightly thickened peritoneal covering, but between it and the musculature small tubercules are occasionally seen. In the muscle itself, which contains an increase of connective tissue, are a few well-developed tubercles with caseous centers. About the blood vessels are numerous lymphoid cells. The line between the normal uterine musculature and the tumor can not readily be demonstrated. The mucosa over the tumor in the upper portion of the uterus is intact but in the submucosa are irregular accumulations of lymphoid cells. At a point where the definite arrangement of the musculature ceases there is an abrupt transition to diffuse tuberculous tissue containing numerous giant cells and characterized by extensive caseation; few typical tubercles can be seen. In the midst of this are found here and there isolated areas of smooth muscle, containing tubular glands. These latter are lined for the most part by several layers of cylindrical cells, of the type found in the uterine glands, but are tortuous and show more or less irregular dilations. They are not infrequently arranged in clusters and have branching prolongations with but a single layer of epithelium. In the masses of muscle a moderate amount of connective tissue is present and also a slight infiltration of lymphoid cells. The glands are found throughout the new tissue, even at a distance of 2 cm. from the uterine wall and have no relation to those of the mucosa. There is no evidence that the channel of the tuberculous infection was along these glands.

Sections taken at three levels and passing through entire wall of apparently normal portions of uterus opposite tumor show no evidence of tuberculosis. The mucosa in each is normal. A section through the cervix shows no lesions.

A section across the entire uterine canal at a point of greatest constriction shows partial obliteration, but no tuberculosis of the mucosa. The lumen at this point contains a small plug composed of mucus, leucocytes and desquamated epithelial cells.

Right Fallopian Tube.—The mucosa is entirely destroyed. The surface is a chronic granulation tissue within its deeper layers more or less newly formed fibrous tissue. Epithelioid cells are not abundant and are very diffusely arranged. But one definite tubercle with typical giant cell is seen. An occasional oval fibrous and hyaline area is suggestive of healed tubercle, as are also a few small foci of lime salts. In the deeper layers of the muscle coat are accumulations of lymphoid cells and old blood pigment, but no tubercles.

The left Fallopian tube is atrophied, but otherwise not noteworthy. The ovaries are fibrous and contain a few small cysts but show no evidence of tuberculosis.

Careful examination of the peritoneal surfaces of the uterus, tubes and ovaries fails to reveal lesions of tuberculosis.

PATHOLOGIC DIAGNOSIS.

Tuberculosis of an adenomyoma of the uterus. Tuberculosis of right Fallopian tube. Atrophy of ovaries and Fallopian tubes. Chronic perimetritis and perisalpingitis.

REMARKS.

As already stated, we have made a search, although not exhaustive, of the medical literature for analogous cases, but have failed to find such.

Closely resembling the case here reported, however, is one observed at the gynecologic clinic of Zurich by C. Bole (du Locle).[1] A summary of this case reads as follows:

History.—Woman, aged 50; heredo-tuberculosis; menstruation at thirteen; leucorrhea. Patient married twice, no children. Dysmenorrhea and loss of strength.

Present State.—Uterus anteflexed, movable, slightly tender on pressure and about the size of a child's head in volume.

Diagnosis.—Uterine myoma.

Laparotomy.—Total hysterectomy after Freund's method. The tumor, when extirpated, is twice as large as one's fist. The macroscopic and microscopic examination showed that it was a rare case of myoma associated with an ascending uterotubal tuberculosis. The vaginal mucosa was not involved, and the etiology could not be determined.

This case, however, is not identical with the one here reported. The tumor is intramural, but the tuberculosis is spoken of as an ascending uterotubal infection, and the myoma as associated with it. From this it may be inferred that the mucosa alone was involved in the tuberculous process. This inference also finds support in the statement that the histologic researches bore only on "the superficial portions, in a state of necrosis." Thus it would appear from these comparisons that our case might, indeed, deserve to be considered as unique.

Kelly[2] states that "tuberculosis of the endometrium is exceedingly rare as complication in the large myomatous uterus." He has met but one case and in this the disease had extended out into both tubes.

A last point not to be overlooked is the mode of infection or of transmission to the uterine parenchyma.

As regards the pathogenesis of the local lesions in our case, it seems very plausible that the adenomyoma constituted the primary lesion and that the tuberculous infection occurred secondarily. But how did this infection take place? How in this particular case was it transmitted from the lungs?

From the clinical history and from the findings at the time of the operation it seems fair to believe that the propagation of the lesions to the uterine tissue took place through the blood current, and in a similar manner to the only tube involved.

1. Gynækologia Helvetica, 1903, p. 99.
2. "Operative Gynecology," vol. II, p. 281

Infection by means of the blood stream seems to be well supported by the conclusions of M. Schakoff,[3] which may be given as follows:

Genital tuberculosis in women is generally secondary to a florid or latent tuberculosis of the lungs or of the peribronchial lymph nodes, less frequently to an intestinal tuberculosis. The genital tuberculosis is generally propagated by the blood stream, except in the case of vaginal tuberculosis, which may proceed from inoculation by contact.

Tuberculous peritonitis occurs frequently during the evolution of a genital tuberculosis, especially after a tuberculous salpingitis. Any portion of the genital tract may be affected; the tube is involved more frequently, the vagina less often. These inoculations take place by the blood stream; therefrom the uterus or the ovary may become infected by contiguity. Generally the uterus is infected by descending contagion; it may, however, be involved in the first place. A pre-existing disease and the puerperal state may act as predisposing causes. The uterine cervix is rarely the seat of tuberculosis. The tuberculosis of the ovary is almost always consecutive to a tuberculosis of the Fallopian tube, of the peritoneum, or of the rectum; the propagation occurs by contiguity or by way of adhesions. Independent foci may, however, be found in the ovary without any lesions of the surrounding structures; in such cases these foci have been set up by the blood stream.

In the above conclusions, the two points of practical bearing on our case are: 1. Genital tuberculosis in women is generally secondary to pulmonary tuberculosis. 2. In tuberculosis of the uterus or of the ovary, when the tuberculous lesions are found as independent foci without lesions of the surrounding structures, the inoculation has taken place by the blood current. That the latter would appear to be the case is indicated by the absence of tuberculosis in the mucosa, not only of the uterine cavity generally, but also in that covering the tumor itself. It is possible that alterations in the blood supply of the tumor caused a condition of degeneration or necrosis constituting a *locus minoris resistentiæ* and a point of selection for tubercle bacilli reaching these areas through the blood stream.

DISCUSSION.

DR. HENRY A. CHRISTIAN, Boston, thought that in a case of this kind without close study two interpretations might be given of such a tumor mass. First, that the mass is a proliferative form of tuberculosis, such as frequently occurs in the lymphoid tissues; the other is that it is a definite tumor infiltrated by tubercle bacilli. The presence of glands in this tumor gives weight to the latter interpretation. It seems almost impossible to have these glands in the mass without its being a true tumor formation; moreover, their presence may have been necessary for the development of the tubercle bacillus. Ordinarily, in a fibromyoma there are not the conditions in its dense structure for the good growth of the organisms. In this case there is a loose cellular tissue about the glands which is more favorable for the growth of bacilli. The presence of the glands is of importance in simplifying a diagnosis and determining the character of growth.

3. "Contributions to the Knowledge of Tuberculosis of the Female Genital Organs," Gynäk. Helvet., 1904, p. 139.

Is Boric Acid Ointment Sterile?—On the basis of 125 examinations of boric acid ointment Nyman (*Farmaceutiskt Notisblad*, abst. in *Apotheker-Zeitung*, No. 59, 1906), comes to the conclusion that boric acid ointment with a minimum content of 10 per cent. of boric acid is sterile, but that the sterility of ointments containing less of the acid can not be assumed.

OCULAR INJURIES FROM FOREIGN BODIES,

WITH REPORT OF 420 CASES.*

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In the following paper are recorded the results of a study of 318 cases of ocular injury from foreign bodies in which Roentgen ray examination was made, the report supplementing a previous study made in 1901 of 102 similar cases. A tabulated statement of the 420 cases is given below.

For purposes of study the vitreous chamber is divided into three sections, the region of the equator including that portion 3mm. in front of, and 3mm. back of, the equatorial diameter; the ciliary region that portion in front of, and the posterior region, that portion back of the outlined zone of the equator.

Position of body.	First series.	Present series
In the eyelid	1	2
In the lens	3	14
In iris, or posterior chamber	1	4
In the ciliary region	24	27
Near the equator	21	69
Posterior part of eyeball	12	46
In the orbit	3	11
No body found by *x*-rays	37	145
Total	102	318

Of the total number of injuries, 356 were caused by particles of iron and steel, 23 by copper, 25 by bullets or small shot, and 16 by glass, stone or coal. In 17 cases the body was situated in the eyelid or orbit, in none of which did the eyeball on the corresponding side escape injury. In one the injury to the lid was complicated by an incised wound of the cornea, prolapse of the iris, and traumatic cataract, all of which must have been made by a second body which did not lodge in the eyeball, or by a blow from one of the workman's tools.

The right eye was injured in 178 cases and the left eye in 242 cases. The relatively greater frequency of injury of the left eye is probably due to the position taken by right-handed workmen in handling their tools and in chipping or hammering metal.

The majority of patients were referred to me for *x*-ray localization from the Wills Hospital, the Jefferson Hospital, the University Hospital and the Pennsylvania Hospital, and I am under obligations to the surgeons connected with these institutions who operated on the cases for assistance in recording the ultimate result in each case. Many of the patients have remained under observation since operation. Some have returned periodically for examination, others have been visited at their place of business or at their homes, so that the present condition of their eyes has been determined. In others it has been impossible to learn the late result because of removal from their previous homes, and adoption of other methods of livelihood.

In the first series of cases, which includes injuries seen from 1897 to 1901, there were 65 cases in which a foreign body was located in the eyeball or surrounding tissues. Since this published report, three eyeballs were removed, two for iridocyclitis a few months later, and one because of recurring hemorrhage into the interior of the eyeball four years after extraction of the steel. The ultimate result in these 65 cases, so far as data could be obtained, together with the results in the 318 cases of the present series, is as follows:

EYEBALLS ENUCLEATED:	First series.	Present series
Extraction not attempted or failed	14	19
Extraction successful; enucleated later.	8	26

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

EYEBALLS ENUCLEATED:	First series.	Present series.
No operation attempted	7	13
Bodies in the orbit or eyelid	4	9
Extraction failed	2	6
EXTRACTION SUCCESSFUL:		
Vision, between 6/6 and 6/12	7	20
Vision, between 6/15 and 6/60	4	13
Fingers or hand movements	0	7
Good light projection	9	27
Light perception	6	21
No light perception, eye normal size	0	6
Eyeball shrunken	4	6
No bodies shown by the *x*-rays	37	145
Total	102	318

The first series of cases covers a period during which the small Hirschberg magnet, operated by fluid batteries, was practically the only instrument available, and insertion of the magnet point into the vitreous was necessary in nearly every case. Notwithstanding the added traumatism of the magnet, the visual acuity in these cases has been retained up to the present time.

In the present series of cases, magnets with greater attractive power have been used, and, although a few of the surgeons have adhered to the method of introducing an elongated tip into the vitreous, most of the operators apply the large, short tip of the magnet at the wound of entrance or at an incision made in the sclera, only entering the smaller point when the magnet at the scleral opening fails to withdraw the body.

In a few instances the metal was removed by the Haab magnet, but in the majority of cases the Sweet magnet operated on the 110-volt lightning circuit was used. Bodies situated in the lens or in the posterior chamber were extracted by way of the anterior chamber, and this plan was followed in four of the bodies located in the vitreous chamber, but the operation of choice has been to withdraw the body through the wound of entrance when still open, or through a meridional incision in the sclera made close to the indicated position of the body, the point of selection being between the external and inferior recti muscles.

In most cases of recent injury the larger magnets have sufficient power to attract the metal without entering the point into the vitreous, and it is only when the body is embedded into the choroid or sclera that insertion of the magnet becomes necessary. It is true that good vision has resulted in spite of the entrance of the magnet point deeply into the vitreous, but experience has demonstrated that this procedure increases the traumatism and contributes to ultimate shrinking of the ball or to iridocyclitis.

Cases not seen until weeks or months after injury must be dealt with according to the site of the metal and the symptoms from which the patient suffers. The *x*-ray localization will often assist the operator in judging of the possible difficulty in removing the metal. Bodies situated above the horizontal plane of the globe or posteriorly in the vitreous chamber are usually caught in the coats of the eye, and in a few days or weeks become firmly bound by inflammatory exudation which resists extraction even with the magnet point brought close to the indicated location. Bodies at the bottom of the vitreous, in the neighborhood of the ciliary body or equator, usually drop into this region after penetrating the anterior segment of the globe, and, not having penetrated the retina or choroid, are more readily secured, even after remaining in the eyeball for a considerable period.

In old cases that will presumably offer difficulties in the extraction of the metal, operative interference may be postponed so long as the eye is quiet. The patient, however, must understand the necessity of promptly seeking advice should inflammatory symptoms arise. If the injured eyeball is irritable, or sympathetic irritation exists, an attempt should be made at once to extract the metal, and in the event of failure the ball should be enucleated without delay.

EYEBALLS SAVED.

In the first series of cases, extraction was successful and the eyeballs were saved in 30 cases, 7 with vision better than 6/12, 4 between 6/15 and 6/60; 9 with good light projection; 6 with light perception, and 4 with slightly shrunken eyeballs. In the present series, extraction was successful in 100 cases, with vision better than 6/12 in 20, between 6/15 and 6/60 in 13, counting fingers or hand movements in 7, good light projection in 27, light perception in 21, no light perception in 6, and eyeballs shrunken in 6. In the total 63 cases with light projection or light perception removal of the cataract would ensure serviceable vision in many of the patients.

A summary of the 106 cases of the present series is given in Table 1. The details of the first series of cases studied have been previously published,* and are therefore not given here.

TABLE 1.—EYEBALLS SAVED.

Case.	Surgeon.	Period Between Injury and Operation.	Period Between Operation and Last Examination.	Vision.	Remarks.
111	Love	1 day	1 mo.	Good proj.	Cataract.
118	Schwenk	7 days	4 yr.	6/9	"
162	Ziegler	3 days	1 "	No l. p.	Ball shrunken.
182	de Schweinitz	8 mo.	2 mo.	6/6	Aphakia.
260	Zentmayer	7 wk.	2 "	6/9	"
337	Sweet	15 yr.	1 yr.	Good proj.	Cataract.
368	Sweet	1 day	2 mo.	" "	Cap. cataract.
386	Hansell	1 day	4 "	6/60	" "
388	Posey	1 day	1 "	Good proj.	Cataract.
	POSTERIOR CHAMBER:				
159	Risley	4 wk.	3 mo.	6/9	
166	Posey	3 "	3 "	5/25	
227	Van Pelt	2 "	2 yr.	Good proj	Cataract.
195	Harlan	4 days	3 "	6/9	
	CILIARY REGION:				
119	Risley	2 days	4 yr.	Good proj.	Cap. cataract.
125	Oliver	35 "	2 mo.	5/10	
126	McClure	3 "	4 yr.	No l. p.	Eye slightly shrunk'n.
135	Thomson	7 yr.	3 mo.	No l. p.	" " "
151	Radcliffe	2 "	4 yr.	No l. p.	Eye normal size.
167	de Schweinitz	2 mo.	4 mo.	6/5	
217	Thomson	10 days	5 "	Good proj.	Cataract.
223	McClure	3 "	1 "	L. p.	
248	Oliver	5 "	2 yr.	Fingers 9'	"
253	Sweet	1 day	2 "	6/9	Aphakia.
257	Hansell	15 mo.	2 "	No l. p.	Eye normal size.
261	Ziegler	3 days	2 "	Fingers 3'	Cataract
268	Ziegler	5 mo.	18 mo.	Good proj.	"
285	Sweet	3 hr	2 yr.	6/6	
300	McClure	2 days	5 mo.	6/22	
326	Posey	2 "	1 "	6/9	
334	Ziegler	8 yr.			Opt. ciliary neurect. Extraction failed
365	Oliver	6 mo.	6 mo.	Imp. l. p.	Eye shrunken bef. ex.
369	McClure	18 "	4 "	No l. p.	Eye slightly shrunk'n.
370	Risley	3 wk.	3 "	Good proj	Capsular cataract.
398	Oliver	8 days	1 "	6/9	
	EQUATOR:				
107	Schwenk	13 days	5 yr.	No l. p.	Eye slightly shrunk'n
117	Oliver	13 "		5/20	Extraction failed
120	Ellegood	7 "	7 wk.	6/60	
139	Sweet	7 "	2 yr.	Fingers 5'	Part. ret. detach.
141	Ellegood	4 "	1 mo.	Fingers 3'	Cap. cataract.
145	Posey	1 "	6 "	6/22	Part. ret. detach.
152	McClure	7 "	3 "	Good proj	Aphakia.
155	Murdock	3 "	1 "	" "	Cataract.
157	de Schweinitz	2 hr	1 "	6/6	"
163	Sweet	9 mo.	3 yr.	6/6	
165	de Schweinitz	5 wk.	1 mo.	Fingers	Body loose in vit.
168	Oliver	6 days	3 yr.	5/30	Large ret. det. bef. ex.
171	McClure	1 wk.	6 wk.	L. p.	Cap. opacities.
176	de Schweinitz	6 mo.	3 yr.	Fingers 2'	
178	Fisher	2 days	2 "	L. p.	Chor. degeneration.
179	Randolph	2 wk.	3 "	Good proj	
183	Harlan	4 days	3 "	6/6 partly	

* Transactions American Oph. Society, 1901.

TABLE 1.—EYEBALLS SAVED (Continued).

Case.	Surgeon.	Period Between Injury and Operation.	Period Between Operation and Last Examination.	Vision.	Remarks.
185	Harlan	1 "	6 mo.	L. p.	Pupil occluded.
193	Harlan	3 "	1 wk.	Good proj.	Cataract.
198	Parker	2 "	3 yr.	5/9	Isol. opac. of lens.
205	Radcliffe	1 mo.	1 "	Good proj.	Cataract.
210	McClure	1 "			Extraction failed
215	de Schweinitz	3 "	2 days	L. p.	Cataract.
228	Risley	5 days	1 mo.	H'nd move	
229	Sweet	2 "	4 "	L. p.	
232	McClure	3 "	3 yr.	6/60	Cap. opacities.
241	Fisher	3 "	2 "	Good proj.	Cataract.
244	McClure	2 "	2 "	" "	"
251	Hansell	3 mo	3 mo.	" "	"
258	Oliver	2 days	2 yr.	No l. p.	Eye slightly shrunk'n.
265	Oliver	2 wk.	2 mo.	5/20	
267	Risley	3 "			Extraction failed
270	Risley	6 "	1 mo.	L. p.	Eye slightly shrunk'n.
278	Sweet	6 "	1 yr.	5/20	Cap. opacity.
302	Schwenk	3 days	1 "	Good proj.	Cataract.
304	Ziegler	7 mo.	18 mo.	L. p.	Ret. dt. bef. oper.
306	Schwenk	2 days	1 yr.	6/15	
309	Sweet	1 mo.	3 mo.	Imp. l. p.	" " " "
319	Radcliffe	4 days	14 "	6/6	Aphakia.
339	Fisher	12 "	1 yr.	6/30	"
348	Fisher	1 "	1 mo.	6/9	
351	Risley	6 "	1 "	Good proj.	Cataract.
361	Sweet	4 "	1 yr.	" "	"
382	McClure	4 "	4 mo.	6/15	Cap. opacity.
385	Sweet	21 yr.	6 "	No l. p.	Eye normal size.
387	Ziegler	4 days			Extraction failed
394	Fisher	2 "	3 "	L. p.	Eyeball irritable.
391	Ziegler	9 yr.	3 mo.	No l. p.	Eye normal size.
414	Sweet	2 days	1 "	Imp. l. p.	Vitreous opac.
	POSTERIOR PART OF GLOBE:				
116	Zentmayer	3 days	1 mo.	Good proj.	Cataract.
121	Risley	7 "	2 "	" "	Part. cataract.
122	Thomson	2 "	4 yr.	6/6	
128	Schwenk	3 mo.	4 "	Imp. l. p.	Part. ret. detach.
134	McClure	15 days	2 mo.	L. p.	Vitreous opacities.
234	Zentmayer	1 "	3 yr.	L. p.	Cataract.
237	Risley	2 wk.	3 "	6/12	
239	Oliver	4 days			Extraction failed.
245	McClure	4 "	3 mo.	L. p.	Cataract.
252	Posey	2 "	1 "	L. p.	
254	Posey	2 wk.	2 "	L. p.	
295	Risley	1 "	2 "	Good proj.	Cataract.
305	Harlan	1 mo.	3 "	No l. p.	Normal size eye.
310	Sweet	6 days	2 "	Imp. l. p.	Cataract.
317	Ziegler	2 mo.	2 "		
318	Sweet	13 days	1 yr.	Good proj.	"
336	Schwenk	12 "	1 mo.	" "	"
375	McClure	2 "	2 "	6/60	Vitreous opacities.
348	Fisher	1 "	1 "	5/9	
351	Risley	6 "	3 "	L. p.	Cataract.
379	Posey	10 mo.	5 "	Good proj.	"
393	Van Pelt	2 "	3 "	" "	"
407	Oliver	5 "	1 "	No l. p.	Degener. vitreous.

An analysis of the visual results in the patients that have been under observation for a period of years, in which a scleral incision was made in the extraction of the metal, indicates that retinal detachment following this method of procedure must be of rare occurrence. In not one of the cases in the tabular statement in which the media permit a study of the region of the incision made in the ocular structures has detachment of the retina occurred, although in many of the patients a sufficient period has elapsed to exclude further retinal or choroidal changes. The continued irritation and exudative inflammation of a long retained foreign body in the coats of the eye is probably a more potent factor in causing detachment of the retina than a small, clean cut of the sclera and the adjacent retina and choroid.

In several of the tabulated cases retinal detachment was present prior to extraction of the metal, and in many eyeballs with only light perception the retina is likewise detached, but it is difficult to say whether the presence of the foreign body or the insertion of the magnet point in the removal of the body was the primary cause of the detachment.

EYEBALLS LOST.

In the first series of cases, 22 eyeballs were lost, in 7 of which the injury was by non-magnetic bodies. In 9 cases extraction was not attempted; 3 cases were injuries from steel, and 6 from copper or small shot. In 5 cases extraction failed, and on enucleation, the metal in the eyeball was found firmly embedded in new fibrous tissue. In 8 cases the body was successfully removed, but enucleation was required in 5 cases because of iridocyclitis, in 2 cases from recurring hemorrhages into the vitreous, and one from panophthalmitis.

In the present series, 45 eyeballs were lost, in 35 of which the injury was from iron or steel, 6 from shot and 4 from copper. In 12 cases no attempt was made to extract the metal; in 7 cases extraction failed, while in 26 the body was successfully removed. In 8, evidences of panophthalmitis was present at the time of examination, and in 2 the ball was immediately removed, in 5 on the following day, and in 1 on the ninth day; in the other 18, the magnet point was inserted into the vitreous in nearly every instance, increasing thereby the traumatism, and probably in a large measure contributing to the iridocyclitis that compelled ultimate enucleation. In a number of these cases the body had remained in the eyeball a sufficient time to render the saving of the globe problematical, even in the event of successful extraction. The period between injury and operation in the 18 cases was three days in 3 cases; four days in 1; five days in 2; seven days in 1; fourteen days in 1; sixteen days in 1; twenty-four days in 1; four weeks in 2; five weeks in 2; and the remaining 4 cases, six months, eight months, eighteen months and thirteen years, respectively.

TABLE 2.—EYEBALLS LOST.

Case.	Time Between Injury and Operation.	Time Between Extraction and Enucleation.	Cause of Loss of Eye.	Size of Body in mm.
	LENS:			
115	1 day	1 day	Panophthalmitis.	3 x 1
	CILIARY REGION:			
146	3 days	5 months	Iridocyclitis	1.5 x 1
153	7 "	1 month	" "	8 x 5
235	6 months.	3 months	Rec. hem. ant. chamb.	4 x 2
312*	2 days	Ext. failed	Sympathet. irritation	7 x 2
313	16 "	1 month	Iridocyclitis	10 x 7
	EQUATOR:			
130	2 weeks.	23 days	Iridocyclitis	6 x 4
154	5 "	1 month	Shrunken and tender.	12 x 6
160	5 days	4 months	Iridocyclitis	3 x 1
173	4 weeks.	6 weeks	" "	4 x 1
184	8 months.	1 month	" "	3 x 2
186†	3 "	Ext. not tried.	Shrunken and tender.	
187†	1 month	" " "	Sympathet. irritation	
234	10 days	Same day	Panophthalmitis.	5 x 1
240	1 day	" "	"	3 x 4
272	13 years.	3 weeks.	Iridocyclitis	3 x 1
298	1 week	Ext not tried.	" "	7 x 3
315	1 week	" " "	" "	4 x 2
333	1 day	1 day	Panophthalmitis.	3 x 2
402	1 "	Ext. not tried.	" "	1 x 0.5
415†	9 days	" " "	Iridocyclitis	
	POSTERIOR:			
109	2 months.	Ext. failed	Iridocyclitis	1 x ¼
113	3 weeks.	" "	" " 4 yr. later	5 x 4
131	3 days	Same day	Panophthalmitis.	4 x 2
158	2 weeks.	Ext. failed	Iridocyclitis	2 x 1
161	5 "	1 month	Shrunken and tender.	13 x 6
185	3 days.	6 months	Iridocyclitis	6 x 2
197†	2 "	Ext. not tried.	" "	
200	4 "	2 months	" "	4 x 2
207	3 "	1 day	Panophthalmitis.	14 x 1
211	4 weeks.	1 year	Iridocyclitis	3 x 2
230*	3 "	Ext. not tried.	" "	4 x 2
277	6 months.	Ext. failed	" "	3 x 2
279	18 "	3 months	Shrunken and tender.	3 x 1
296	3 days	Same day	Panophthalmitis.	4 x 1
331	5 "	21 days	Iridocyclitis	4 x 2
339	4 "	3 "	Panophthalmitis.	5 x 1
366†	5 weeks.	Ext. not tried.	Severe migraine	
401	2 months.	" " "	Iridocyclitis	3 x 1
406	3 days	9 days	" "	12 x 9
364	24 days	4 weeks.	" "	9 x 2
	ORBIT:			
288*	2 days	Ext. failed	Iridocyclitis	4 x 2
297	7 "	" "	" "	2 x 1
308†	2 "	Ext. not tried.	Sympathet. irritation	
352*	8 "	" " "	Iridocyclitis	1 x 0.5

*Copper. †Shot.

A further cause contributing to the loss of the eyeball in a number of the cases was the severe traumatism at the time of injury, the large size of the metal almost immediately destroying the usefulness of the eye. The dimensions of the body in nine cases were as follows: Case 113, 5x4 mm.; case 153, 8x5 mm.; case 154, 12x6 mm.; case 207, 14x1 mm.; case 298, 7x3 mm.; case 313, 10x7 mm.; case 364, 9x2 mm.; and case 406, 12x9 mm.

The summary of the 45 cases in which enucleation was required is given in Table 2.

The comparatively few cases of panophthalmitis, indicate the resisting power of the vitreous to infection. To some extent disinfection of the body may occur as it passes through the coats of the eye into the interior. Even if the instances of late iridocyclitis are considered as types of infection, the percentage of loss from this cause is small in comparison with the large number of cases of injury. Two causes act to produce loss of the ball from iridocyclitis, the formation of a fibrinous exudate about the foreign body that complicates the extraction by the insertion of the point of the magnet once or more into the vitreous, or the original traumatism is so severe that the eye can not recover.

NO BODIES IN THE EYEBALL.

An unusual large proportion of the total number of injuries was shown by the radiographs to have no foreign body in the eyeball or orbit. In each, the diagnosis of the presence of a foreign substance within the ball was probable from the character of the work on which the individual was engaged, the nature of the injury, and the condition of the eyeball or the reduction in vision.

Of the 145 cases embraced in the present series, 30 were seen within 24 hours of injury, 32 between the second and fourth days, 42 between the fifth day and the end of the second week, 27 between one month and nine months, and 14 over one year. In 49 cases cataract existed, 28 in patients examined during the first week after the injury and 21 after this period; in 5 cases hemorrhage into the anterior chamber was associated with a wound of the cornea or limbus; in 8 cases extensive posterior synechia was present, with opacities on the anterior lens capsule; in 13 recent injuries there was hemorrhage or opacities in the vitreous; while in 20 cases of old injury vitreous opacities prevented a view of the eyeground.

Of the total number of injured eyes showing no foreign body, 124 were caused by iron and steel, 10 by copper from premature mining explosions, 7 by glass or stone, and 4 by small shot.

ORBITAL CASES AND CASES UPON WHICH NO OPERATION WAS MADE.

In 20 cases of ocular injury in which the radiographs showed the presence of a foreign body in the eyeball or surrounding structures, no operation on the eyeball was performed, and so far as could be learned, none of these eyes has been removed. Cases in which no operation was performed, but the eyeball enucleated, are included in another part of this report. Of the 20 cases, 4 were foreign bodies in the lens, two of steel and one of copper; 8 were in the vitreous, six of steel and two of small shot; and 8 were in the orbit, three bullets or small shot, four steel, and one stone. In three patients the eyeballs were shrunken and enucleation was advised, but refused.

There is a more general recognition on the part of the attending physicians who are usually first consulted in these ocular injuries from foreign bodies, of the importance of an early diagnosis. A higher percentage of successful extraction, with preservation of vision, would be secured if every case of ocular injury with reduction of visual acuity was subjected to the *x*-ray examination within a few hours after injury, and the foreign body immediately extracted, should one be shown to have penetrated into the eyeball. Such a course would most largely contribute to the saving of the eyeball and the preservation of some sight, although with the same methods of operation, the same precautions in surgical technic and the same promptness in diagnosis and in extraction, the result in one case may be a shrunken, tender eyeball, that must ultimately be removed, while in another case full acuity of vision will be secured.

SUMMARY.

Total number of injuries from foreign bodies, 420; foreign bodies located in the eyeball, 221; in the orbit, 14; in the eyelid, 3; no bodies shown by the Roentgen rays, 182. Injuries by iron and steel numbered 356; copper, 23; bullets or small shot, 25; and glass, stone, or coal, 16.

In the 221 cases in which the foreign body was located in the eyeball, extraction was successful in 164 cases, with subsequent enucleation in 34; extraction failed in 18 cases, with enucleation in 10, and no attempt was made to remove the body in 39 cases, with enucleation in 19. Although 34 eyes were enucleated after successful extraction of the metal, the majority of these eyes were lost as a result of the original injury and not from the operation. Thus, in 9, evidence of panophthalmitis was present at the time the case was first seen, and in 9 others the large size of the metal inflicting the injury left little hope of saving the eye, while many of the others were old injuries, in which the body was only secured after numerous insertions of the magnet into the vitreous.

The results of operation on the eyeballs containing foreign bodies were: Vision better than 6/12 in 27; between 6/15 and 6/60 in 17; counting fingers or recognition of hand movements, 7; light projection, 36, and light perception 27, with a certainty of increased vision in many of these cases on the removal of the cataract; no light perception, but eyeball of normal size, 6; shrunken eyeball, 10.

CONCLUSIONS.

1. Radiographic examination should be made in every case of ocular injury from a foreign body in which lowered visual acuity is a result of the accident.

2. Extraction of a foreign body through a small meridional incision in the sclera, the magnet point not introduced into the vitreous, causes no greater traumatism than follows drawing the metal through the vitreous into the anterior chamber.

3. Retinal detachment is not a logical result of a scleral incision for the extraction of a body from the vitreous chamber. The exudation associated with a long-retained foreign body is probably a more frequent cause of detachment.

4. Introduction of the magnet point into the vitreous increases the traumatism to the eyeball, encourages retinal detachment and often leads to shrinking of the eyeball and to iridocyclitis.

5. Bodies located above the horizontal plane of the globe or at the posterior part of the vitreous chamber usually present greater difficulties in extraction, owing to the early formation of a fibrous exudate around the imbedded metal, than bodies at the bottom of the vitreous near the equator, to which position they fall after penetration.

DISCUSSION.

DR. HOWARD F. HANSELL, Philadelphia, declared that the literature of more than 10 years ago, or before the utilization of the *x*-rays and the elaboration of the methods of diagnosis and treatment that have developed since that time, is of historical interest only. The recent extensive literature discusses the subject variously and brings into prominence two opposed opinions—first, that localization is superfluous and second, that localization is essential for scientific therapeutics. The believers in non-localization proceed without delay to the extraction with the Haab or other large magnet, usually through the anterior section of the eye, with consummate skill, drawing the metal around the crystalline lens through the pupil. Those who favor the median-sized magnets prefer localization and subsequent extraction through the cornea of bodies situated in the lens or anterior to it and through an opening in the sclera for those posterior to the lens. Dr. Hansell believes in the latter method for the majority of cases, but he believes also that localization is not indispensable to the successful management of the minority, even when the body can not be seen. For example, a linear wound in the cornea, an opacification in a hitherto clear lens and a blot in the field of vision will indicate that the body is in the vitreous, in the coats of the eye or in the orbit. The precise location in the vitreous is of little moment, for, if it is possible of extraction, the body may be drawn through an opening in the sclera made at any convenient place, usually between the external and inferior rectus. Again, *x*-ray localization presents two drawbacks. Our success in localization, thanks to Dr. Sweet's labors, has made us dependent on the diagnosis of the radiograph and too little stress has been laid on the chances of error. A statement only of the possible inaccuracies may be sufficient to avoid mischief. Dr. Hansell has previously called attention, he said, to the chance of error due to a swollen lens or to a grossly myopic or hyperopic eye, in calculating the exact position of a foreign body. In other words, the comparison of a healthy emmetropic eye with one in which the lens is wounded or which is appreciably larger or smaller, is not accurate. He also said that the foreign body may be so small that the shadow on the radiograph escapes the closest scrutiny. This also is exceptional, having occurred but once in my experience. Dr. Hansell said that it is quite within the limits of good practice to omit the radiographic examination in some cases of ocular injury from a foreign body in which lowered acuity of vision is a result of the accident. The apparatus may not be available and valuable time is lost and danger to the eye incurred by a railroad journey of some hours. The immediate application of the magnet to the unclosed wound will avoid the delay and danger, and will determine both the diagnosis and the cure. He said that it would seem to be a simple matter for a patient to know that the wounded eye needs treatment or that the sound eye is suffering from some of the symptoms of sympathetic inflammation, and yet experience does not prove the assumption. A few weeks ago he removed an eye that had been injured 14 years before and had been blind for almost all that time. There was an uncertain history of the entrance of a foreign body but the retention of that foreign body had not been suspected. The sound eye was beginning to be sympathetically affected. After enucleation a minute fragment of steel was found in the ciliary region, too small to cast a shadow on a skilfully taken radiograph. Dr. Hansell believes that incurably blind eyes, particularly those blinded through injury, should be removed. They are and ever will be useless and are always a menace to the sound eye. Patients who lose their eyes from injury are not as a rule well informed and are not to be trusted to know when treatment is required. This opinion is applicable whether the injury be caused by a substance too large to be retained in the ball or one which may or may not be capable of attraction by the magnet. In cases of recent injuries he agrees with Haab that it is safer to allow non-magnetizable particles to remain in the eye unless they are known to be easily accessible, than to probe the vitreous with forceps or other instruments. He called attention to the excellent results of the operation of extraction as recorded by Sweet, and said that it must be remembered that in comparing these statistics with those of injuries and operation in other parts of the body, recovery is often hopeless from the moment of the accident. Of the 420 cases, the total of both series, the radiograph showed the absence of any foreign body in 182, leaving 232 only to be considered. Of these, 51 recovered vision ranging from 6/6 to counting fingers, 22 per cent. Without extraction of the body it is probable that 99 per cent. would have been lost. Statistics such as these of methods of diagnosis and operation in a comparatively new procedure and concerning which there is a diversity of opinion, are of the greatest value in stimulating other workers to renewed efforts for the saving of the eyes which, without scientific experimentation, would be given up as lost.

DR. J. RANLY, Cincinnati, said that having been impressed with the occasional failures in the attempts to remove foreign bodies he constructed a stronger magnet, hoping to overcome this difficulty. It is so built that the blunt-pointed pole pieces can be brought within one and one-half inches and turned at any angle desired so that a slanting direction of the magnetic influence can be obtained. By removing the anterior portion of the Haab tip and attaching a flexible extension arm which can be moved with ease in any direction all the advantages of the hand magnet are obtained plus more power. After the foreign body is brought into the anterior chamber he makes a corneal incision at the most favorable place so as to avoid prolapse of the iris, then applies the magnet tip above the foreign body over the cornea and moves it in the direction of the incision. The incision he considers of great importance and thinks that a place should be selected not near the foreign body as we are compelled to do with the weak magnet, but it should be situated at the most distant part, since the foreign body can be moved anywhere in the anterior chamber without causing any injury. The danger of a small corneal incision being much less than that of a scleral incision is a sufficient reason for removing the foreign body in that way, first bringing it into the anterior chamber by means of the giant magnet.

DR. W. F. COLEMAN, Chicago, mentioned one point in regard to the magnet that served him excellently and demonstrated his remarks with a diagram on the blackboard. The ordinary Haab magnet has such a large point that in a case some years ago he could not enter it and devised an arrangement with a ball and socket joint, which permits of movement of separate tips in any direction. In removing the foreign body he can not see the reasons for Haab's directions to remove it through the anterior chamber, thus running the risk of producing cataract. In a former statement Dr. Kipp referred to a case in which he had been able to extract a foreign body by reversing the poles. Dr. Coleman does not believe that will practically occur. If one takes a short piece of steel, lays it on a paper and takes a hand magnet and puts one pole toward it and then reverses quickly, either pole will attract the particle and neither pole will repel it.

DR. FRANK C. TODD, Minneapolis, said that the slight improvement in results which Dr. Sweet's statistics show over those of Haab, seem to him to result from more careful localization of the foreign body by radiographs, which he understands Dr. Haab has not employed. Since hearing Dr. Haab's paper on his work in the extraction of foreign bodies, Dr. Todd has practiced the method and has been surprised at the ease and success with which it could be carried out. It seems to him to have certain advantages, in many cases, over removal through the sclera, particularly when the body can not be observed. By Haab's method, it is brought to the edge of the lens, back of the iris (after which, the entire process can be observed), then coaxed to the pupil and out into the anterior chamber, to be removed at the corneal margin through an incision. Dr. Todd has secured the effect brought about by Dr. Coleman's attachment by using a steel instrument, one end touching the magnet, the other entering the lips of the wound. It may thus be moved about readily, and the foreign body will become attracted to it.

DR. S. D. RISLEY, Philadelphia, stated that he is at one with Dr. Sweet in his conclusions. So far as injuries which result from foreign bodies are concerned Dr. Risley thinks we should distinctly differentiate between those caused by the entrance of the foreign body itself, by its presence in the vitreous chamber, and those which may be caused by efforts for its extraction. In the first place it should be borne in mind that the foreign

body is not always clean and to extract it by a method which makes a new path through the vitreous increases the liability of infection, and is not, therefore, a scientific procedure. It should be extracted by the shortest possible path, and after localization we know just which path to choose. The incision should be made with a sharp knife and the conical tip of the magnet should be placed against the lip of the wound and patiently held there until the foreign body presents itself. He regards this as the ideal method since it causes a minimum of traumatism at the hands of the surgeon. We should hold as an aphorism that it is bad surgery to introduce instruments of any kind into the vitreous when it can be avoided. To insert the long strip of magnet deeply into the vitreous is, to his mind, an illogical and certainly a most dangerous procedure, and one which in his experience in the majority of instances has been unnecessary. He mentioned a case seen in consultation in which the foreign body had been located by Dr. Sweet. The surgeon asked Dr. Risley's advice as to the locality for incision and he suggested a point nearest the foreign body as shown by the localization chart, but he disagreed and made the incision on the opposite side of the globe and inserted a long tip so that the foreign body was pulled entirely across the vitreous chamber. As to the question of polarity, Dr. Risley has seen a foreign body, a sliver of bright metal 8 mm. in length, reverse itself, end for end, and then approach the magnet, emerging at the original wound of entrance. It was in the anterior segment of the eye and could be readily seen through the widely dilated pupil.

DR. WM. H. WILDER, Chicago, emphasized the matter of radiographs in these cases. He thinks that many of us are prone, as soon as we suspect the presence of a foreign body in the eye, to apply the magnet at once, and it may be in some cases with disastrous results. It is often used in this way to make a diagnosis. He feels sure from experience that this should not be done, and he has seen one or two striking instances in which he was unable to demonstrate the presence of a foreign body. In one case there was a piece of steel as large as the end of a lead pencil. It had penetrated with a remarkably small wound and had pierced the posterior coat of the eye and lodged against the optic nerve. The patient experienced no sensation whatever when the most powerful current was applied. The eye subsequently had to be enucleated. He thinks that in many cases if the surgeons were more careful to obtain a radiograph, and especially by means of some apparatus for localizing the foreign body, there would be less injury to the eye than by at once applying the magnet. He agreed with Dr. Risley that the shortest course that we can have the foreign body pass through is preferable to the method of removing it through the anterior chamber.

DR. EDWARD JACKSON, Denver, recently saw a case with Dr. Stevens, in which a splinter of steel was seen hanging back of the lens, with a wound of entrance showing in the cornea, anterior capsule and posterior capsule. We extracted the splinter with the Johnson magnet through the sclera and the lens has cleared up completely.

DR. T. J. MCCOY, Los Angeles, stated that during the last ten years he has had charge of five different roads and has had to do with a great many foreign body cases. Because of unprincipled attorneys they have to be extremely careful in the location of foreign bodies and have instituted a system; first the *x*-ray is used; second, the written consent of the patient for removing the body is obtained, because disastrous results may sometimes occur. Without that they will not have anything to do with it. Experience points to the fact that the best results are obtained by making the incision nearest to the location of the foreign body. In one case the accident was due to the explosion of a cartridge at twenty feet distant and the patient was struck in the eye. It was impossible to tell whether the foreign body was there because of the hemorrhage. It was located with the *x*-ray and was removed. In another case in the last three weeks a miner was struck with a stone; it was located with the *x*-ray and removed. In dealing with these cases among these miners, mostly foreigners, the physician must be very careful to secure consent first before operating.

DR. WILLIAM M. SWEET, Philadelphia, believes that there is a class of old injuries in which the metal may be allowed to remain so long as it is not causing any symptoms, and the patient understands the importance of prompt treatment in the event of trouble. Patients frequently seek advice for the removal of a traumatic cataract, and are surprised to learn after *x*-ray examination that a foreign body is in the eyeball. An attempt may be made to remove the body with the magnet point placed at the lips of a small incision in the sclera, and in the event of failure the body may be allowed to remain if all reaction following the operation subsides. Numerous insertions of the magnet point into the vitreous in the hope of securing the body from the firm exudate in which it is possibly imbedded may ultimately succeed in removing the metal. Dr. Sweet would rather leave a piece of steel in the eyeball than a piece of copper. He thinks that the tabular statement of the eyeballs least worthy of study, as it indicates in each instance the cause of failure to preserve the globe. A certain number of eyes had to be removed because of the severe traumatism from a large-sized foreign body, but the larger proportion were lost from delay on the part of the attending physician in recognizing the possibility of a foreign body having lodged in the ball. If these cases were seen earlier the results of operation would be more favorable. In compiling the summary of the tabular statements no figures were presented of the results achieved by other operators, since it is practically impossible to draw satisfactory conclusions in comparing groups of cases which involve so many factors that affect the ultimate saving of the eyeball or the preservation of sight. Apart from the fact that the cases summarized cover the experience of many different operators, some of whom adhere to the plan of inserting the magnet point into the vitreous in recent cases, the ultimate results of operation are further influenced by the size of the foreign body, its position in the eye, and time elapsing between the injury and extraction. If we compare the 182 cases in this report in which extraction was attempted with the 165 cases reported by Haab, Dr. Sweet said, we have the following: Extraction successful, Haab, 141 cases, or 85.5 per cent.; this report, 164 cases, or 90.1 per cent. Extraction failed, Haab, 24 cases, or 14.5 per cent.; this report, 18 cases, or 9.9 per cent. Eyeballs requiring enucleation, including only cases in which extraction was attempted, and was successful or failed, Haab, 39 eyes, or 23.5 per cent.; this report, 44 eyes, or 24.2 per cent. Good sight, Haab, 51 cases, or 30.9 per cent.; this report, 44 cases, or 24.2 per cent. Light perception or projection, which could probably be improved to serviceable vision in a large proportion of the cases by the removal of the existing cataract, Haab, 20 cases, or 12.1 per cent.; this report, 70 cases, or 38.4 per cent. Sightless eyeballs, Haab, 19, or 11.5 per cent.; this report, 16 cases, or 8.8 per cent. Extraction failed, but eyeballs not removed, Haab, 12 cases, or 7.5 per cent.; this report, 8 cases, or 4.4 per cent. In de Schweinitz's report of 26 cases, the results were as follows: Good sight, 10 cases, or 38 per cent.; eyeballs lost, 8, or 39.8 per cent.; eyeballs saved, which probably could have been improved by subsequent operation, 6, or 23 per cent.; eyeballs saved, but ball somewhat shrunken, 2 cases, or 7.7 per cent.

Clinical Notes, New Instruments, Etc.

A NEW SHIELD FOR USE IN NOSE AND THROAT EXAMINATIONS.

I. J. KERR, B.S., M.D.
Physician to the Tuberculosis Dispensary.
CLEVELAND, OHIO.

One of the greatest dangers to the physician handling patients suffering from tuberculosis lies in having masses of muco-pus thrown into his face by the patient sneezing or coughing while the nose, pharynx or larynx is being examined. The greatest danger exists in the public clinics where the patients are not over-particular to restrain a desire to cough while being examined. These patients are also apt to have very irritable throats

which render them more liable to cough while the tongue depressor or the laryngoscope is being used.

So far as I know, a glass in metal frame suspended on a movable arm between the face of the patient and the face of the physician is the only device which has been used to protect the physician up to this time. This is certainly a great protection, but it has many obvious disadvantages, among which are the clouding of the glass by the breath of the patient and physician, and its size and position.

During a recent visit to the New York Municipal Clinic for Tuberculosis, Dr. Waters, chief of the clinic, showed me a celluloid shield which had been made for him, but which was not satisfactory and did not seem to me practical. It was simply a sheet of celluloid, with temples similar to those used on spectacles, fastened to the sides, the idea being to wear this shield under the head mirror.

DESCRIPTION OF SHIELD.

I have thought out and had made for me the following device which seems to me satisfactory in most particulars:

It is of celluloid, which, of course, is inflammable if held too close to a flame or very hot surface. I have protected it partly from this by binding its surface with thin strips of aluminum. In this form if it is not held within four inches of the top of the gas or oil lamp, directly over the flame, the danger is very slight, as I have proved by tests. Even if the shield is brought directly in contact with the metal condenser on the lamp after it has been burning for some time it does not ignite. If by chance it does ignite it does not burn rapidly enough to expose the wearer to great danger.

I have considered the possibility of making a shield of mica, but in sheets large enough to make such a shield it would be very expensive. Then, too, it is very easily cracked or splintered, so that it would not be durable. If expense were no object this shield could be made of mica in the same way I have my celluloid shield.

The shield is 7x9 inches and is attached to the posterior surface of the head mirror by four clamps fastened to its surface. A hole is made in the shield in the proper place for the shank of the mirror, and this can be at either side of the center line, according to which side of the light the patient is placed. If the examiner wears glasses a hole may be cut in the shield corresponding to the aperture of the head mirror. The shield may be easily detached from the mirror to be cleaned or disinfected in formalin, or in case the mirror is to be used without the shield.

With good sharp illumination I have no trouble in being able to make the ordinary nose and throat examination while using this shield.

Keenan Building.

A CASE OF POISONING FROM OPIUM OR MORPHIN IN A 7-WEEKS-OLD BABY.

EDWIN OLANDER, M.D.
ST. PAUL, MINN.

On July 6, 1906, I was hastily summoned to see a seven-weeks-old baby whom the mother said was getting blue in the face at times, as if in the last throes of death.

When looking at the child I observed that when it became cyanosed the cyanosis was not caused by a typical convulsion, but rather by embarrassment of respiration. I immediately examined the eyes and found typical pin-point pupils, not reacting to the light. I questioned the mother as to any medicine which had been given, and she brought me a bottle of Jadaway's Elixir for Infants, manufactured by the C. W. Wilson company. The directions read:

A child less than 2 weeks	5- 8 M.
A child 2 to 4 weeks	8-12 M.
A child 4 to 8 weeks	12-18 M.
A child 2 to 4 months	20-30 M.

The mother stated that she had purchased the bottle at a neighboring drugstore, and on the evening of July 5 had given the child five drops for colic. I believe that she had really given this small dose. I knew that I was dealing with a case of opium or morphin poisoning, and told the mother so.

Emetics, high enemas, massage and stimulants were administered, and on the morning of July 7 the child was fully recovered.

The pure food bill which has passed Congress, from a physician's point of view, is many years behind time. We must now see that it is strictly enforced, as it will aid in the prevention of such cases of poisoning as this.

Here a child had been give one-third the dose which the bottle stated could be given and yet suffered severe poisoning from this dangerous preparation.

A CASE OF INTESTINAL OBSTRUCTION.*

FRANK S. HOUGH, M.D.
SIBLEY, IOWA.

I have made no extensive examination of the literature of intestinal obstruction, but from the nature of this case I believe that it is a rare one.

History.—Mrs. A., aged 30, married one year, was operated on by me two years ago for destructive disease of the appendages. Nine years ago she suffered from pus tubes and general pelvic inflammation. Both ovaries were mere sacs filled with soft necrotic material, and all the other evidences of long-continued inflammations were present. She was a physical wreck. For about a year she suffered severely from the artificially-induced menopause; after that she commenced to put on flesh and became, apparently, the picture of health.

Present Illness.—On the evening of May 9, she partook liberally of sauerkraut. Se returned home and retired with a feeling of well being. Some hours later, after midnight, her husband saw that she seemed ill, as she was groaning and rolling about though still asleep. He aroused her and she said that she had great abdominal pain; the abdomen was found to be swollen. Soon she commenced to vomit and the pain increased in severity. I was summoned some time later and was loth to diagnose obstruction because one classical symptom, the element of shock (as registered by pulse, temperature and skin) was wanting. The patient vomited incessantly for sixteen hours.

Treatment.—I made many unsuccessful attempts to pass a long colon tube, but at last my efforts were rewarded by such an immense discharge of gas and feces that I thought, and told the family, that things were now all right. The pain and vomiting stopped for an hour and then the same symptoms returned and I found that I had only emptied the colon and that the small intestine was still enormously distended. I suspected volvulus near the lower end of the cecum.

Operation.—An eight-inch incision was made through the right rectus and was followed by evisceration of practically all the ileum, which was greatly distended and cyanotic. Not having a Paul's tube or other similar contrivance, multiple incisions were made in the bowel which allowed of evacuation of contents. The emptied bowel was sutured and returned. The cecum was located and an effort was made to elevate it and the adjacent ileum but it could not be done. The constriction could be felt, however, and a distended black loop of bowel was fished

* Abbreviated from a paper read before the Upper Des Moines Medical Association, Spirit Lake, Iowa, July 11, 1906.

up. A white glistening cord was apparently tied around it. This cord was round, about three inches in length and the size of one's little finger, resembling somewhat a thick fibrous appendix. The herniated loop could not be extricated until the cord was exsected. By the application of hot wet compresses the strangulated bowel changed in color from black to rosy red, and no portion of the bowel was removed as its mesentery seemed all right and it had resumed a contracted natural appearance.

Result.—The patient did not vomit after the operation and on the second day she commenced to pass large quantities of liquid feces. The abdomen flattened and became normally tympanitic. Her recovery was rapid. She required cascara and epsom salts almost daily for two or three weeks before the bowels regained a normal condition.

The condition was of the nature of an intra-abdominal strangulated hernia. This cord was attached at one end to the bowel wall furthest from the mesenteric attachment, and to the adjoining mesentery near the bowel, so that a ring existed whose circumference was cord, bowel and mesentery. The diameter of this ring was one and one-half inches. This old adhesion was about six inches proximal to ileocecal valve, and on inspection another one almost identical in appearance was found a few inches proximal to that which was exsected to prevent subsequent trouble. These bands were undoubtedly the vestiges of her peritoneal inflammations years ago, and were there when I operated on her pelvic organs two years ago, but no search was made in this region at that time. She might have carried them around with her for years without suffering any inconvenience had not an unaccustomed dinner, and perhaps more especially the sauerkraut, excited violent peristalsis, and the ileum being thrown into violent action became strangulated by this band.

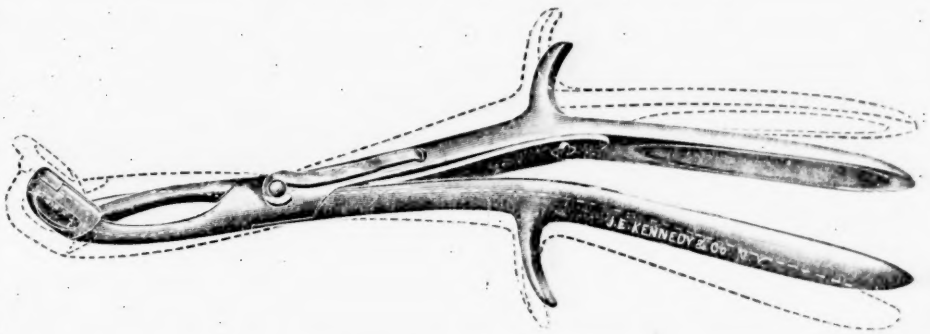
Strangulated herniæ through the omentum, diaphragm and mesentery are not very rare. Adhesions often bind the bowels together and cause obstruction, and adhesions do the same by crossing the intestine. Such a case as this seems to me to be very rare. Had operation been delayed longer her chances would have been small, and my delay was due to the fact that I was unable to reconcile an unaffected pulse of 75, warm extremities, natural skin and no apparent depreciation of strength with volvulus or other form of obstruction, in spite of the distension, pain and vomiting.

A NEW ADENATOME.

GEORGE B. McAULIFFE, M.D.
Chief of Clinic and Clinical Instructor, Department of Otology, Cornell University Medical College, Chief of Clinic, Aural Department, New York Polyclinic Hospital.
NEW YORK.

While many surgeons maintain that forceps are unnecessary in adenoidectomy, experience has proved to others that a radical operation is much better accomplished by the use of the forceps, followed by the curette. The majority of forceps are modifications of the Lowenberg model, two spoons, grasping the mass between them. No instrument has hitherto been designed (except Concannon's) that prevents the wounding of the anterior boundaries of the pharynx and of the uvula. While the majority of operators are expert enough to avoid these accidents, nevertheless these mishaps are reported often enough to merit attention to this defect in the design of the instruments. Some operators, like Myles, use the finger to prevent the inclusion of the uvula. That the probability of accident hampers the freedom and quickness of the adenoidectomy is without doubt.

The instrument shown here meets the difficulty by hinging the cutting blades where they come in contact with the anterior boundaries of the epipharynx. The uvula can not get in the way and the attention of the operator can be centered on the adenoids, which fall easily in the jaws of the instrument. Besides, the economy of motion in the opening of the blades to their full sweep makes the manipulation of the instrument very easy. The addition of the obstetric prongs enables forward pressure to be made against the adenoids. Despite the multiplicity of parts the instrument

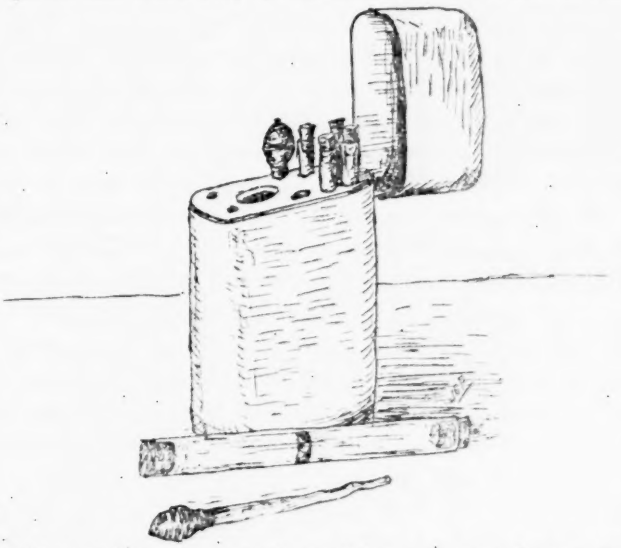


is sterilizable; and the separability of the cutting blades from the handles permits of the use of different sizes of cutting blades on the same handles. I am indebted to Mr. J. Kennedy for many practical suggestions.

AN IMPROVISED POCKET CASE FOR EYE DROPPERS.

J. G. PARSONS, M.D.
BROOKINGS, S. D.

Feeling the inconvenience of carrying a bag to hold dropper bottles when making a visit to eye patients, I have improvised a pocket case which will, in a measure, serve the oculist as the



tablet case does the general practician. As may be seen in the picture, the case is an aluminum hypodermic case. Four of the tablet vials are used to hold solutions. Two droppers, one amber for atropin, are made by drawing out tablet vials in an alcohol flame. In the mouths of the droppers are fitted rubber bulbs from vaccine tubes, the perforations being closed with bits of rubber. The syringe hole carries a tube which may be used for another solution, or, as shown in the cut, an open tube, plugged in the middle with a cork, may be used to hold two kinds of powder.

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[*For other information see second page following reading matter.*]

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THE AMERICAN MEDICAL ASSOCIATION: ITS FRIENDS AND ITS ENEMIES.

During the first fifty-five years of its existence, lack of effective organization and of sufficient funds prevented the American Medical Association from undertaking to carry out certain objects that from time to time have been emphasized as advisable for the good of the profession. During this time the work of the Association along these lines was limited to the occasional adoption of resolutions, or to the appointment of committees which could do little but make recommendations. In 1902 the feeling which had been growing that a closer and more effective organization was required resulted in the adjustment of the principles of medical organization to present-day conditions, and in a most remarkable organization movement on the part of an awakening profession. At the same time, careful, conservative management on the part of the Board of Trustees, combined with the application of modern business methods to the conduct of the affairs of the Association, finally resulted in the accumulation of a surplus.

Thus with the necessary means and a compact organization the Association, for the first time in its history, was in a position to take up work that heretofore had been out of the question. For instance, the House of Delegates in the last three years has established the Council on Pharmacy and Chemistry and the Council on Medical Education, and has ordered the compilation and publication of a national medical directory. The objects of these three movements are the same: the accumulation of facts and the publication of the truth regarding matters of direct interest and importance to the medical profession. The Council on Pharmacy and Chemistry was created to investigate proprietary preparations and to inform the profession regarding them; the Council on Medical Education was established to coöperate with licensing boards and with medical colleges for the purpose of improving medical education and of bringing about practical methods of reciprocity in licensure, in other words, to advance the cause of a higher standard of medical education; the directory was established with the object of presenting to the profession the official facts regarding every practicing physician.

These objects are altruistic in every sense of the word and are for the betterment of conditions affecting both the medical profession and the public at large. In this work the Association should receive the support of every honest man, whether layman or physician. And yet opposition has arisen! Who are the men and what are the interests that are seeking by indirect methods, by misrepresentation and personal attack, to obstruct and to nullify the work of the Association? In the answer to this question will be found the key to the entire matter.

This opposition, apparently widespread and diverse, will, when analyzed, be found to come from four different sources. These are: 1. The Proprietary Association of America, which, it will be remembered, circulated most malicious and libelous attacks on the American Medical Association, sending these to the newspapers all over the country, and which in other ways did all it could to create a public sentiment against the Association. This was because the American Medical Association lent its influence and support to the efforts that were being made to enlighten the public regarding the frauds that were being perpetrated on it by the "patent medicine" men. 2. The so-called "ethical" proprietary medicine men, whose products or methods would not bear investigation. 3. Those privately-owned medical journals which were more or less dependent on the income received from the above. 4. The firm owning and publishing a medical directory.

It was foreseen from the beginning that the most bitter and persistent opposition would come from those who would least relish a comparison of the claims they made in their advertising and the goods they sold; whose stock in trade consisted of alluring advertisements rather than of meritorious products. These expectations have been realized.

It is in some respects an amusing matter to note the marked change that has taken place in the views of certain commercial interests regarding the Association. So long as it was without capital, so long as its activities were necessarily limited to the passing of resolutions, so long as the Association did nothing—so long was it lauded and praised as a great and beneficent body. But mark the sudden change. No sooner were active measures inaugurated for the betterment of existing conditions and for the correction of evils long known and recognized than the Association was assailed, its officers were attacked and their motives impugned for doing exactly what they had been instructed to do by those representing the profession. Caricature, ridicule, invective, misrepresentation, half statements and distortions of the truth have all been utilized to check the work of the Association.

Failing in these attacks from without, however, and finding the Association at Boston more harmonious and more united than ever before, an attempt is now being made to disrupt the Association and to nullify its work by creating dissensions and suspicion in the Association itself. In this attempt to create discord have been en-

gaged not only the elements and influences noted above, but also, to their shame be it said, medical journals which for years have claimed a place in the very van of medical progress, and whose standing was such as to warrant the belief that they would not stoop to print deliberate and malicious falsehoods. One of these journals, whose columns in the past have been kept filled by contributions from the most prominent members of the body which is now being attacked, whose publishers for years have derived large revenues from our profession, has seen fit to follow the lead of the weak, subsidized journals in this attempt to disrupt an organization of those who have contributed to the success of the publication and who have made the fortunes of its owners possible. Incidentally it may be noted that among all the slurs and attacks made on the Association and its officers there have been no definite, tangible accusations, no specific statements, but, on the contrary, insinuations, vague generalizations and indefinite hints of alleged or assumed mismanagement.

To these attacks so far no reply has been made, because the officers have continually been assured by the friends of the organization that the source and the animus of these assaults were fully apparent to all, and because they deemed the work in which the Association was engaged of too great importance to waste time or effort in defense. Possibly no explanations are needed now, but when members of the Association of years' standing, men like Dr. Carstens, whose sincerity, honesty and loyalty to the Association are beyond suspicion, write letters and ask questions which show plainly that they have been misled and have accepted as facts the vague statements and indefinite insinuations made by those who are interested in creating dissatisfaction and suspicion, and when falsehoods and malicious misrepresentations are being circulated by journals hitherto of good repute and standing, then it is evident that the time has come to state some plain truths in order that the members of the profession may know the facts. Neither the Association nor any of its officers have anything to fear from full and complete publicity of all facts relating to the work that is being done or to any of the affairs of the Association. As a matter of fact, full and complete publicity has always been made regarding everything concerning the Association. No board of directors has ever presented to its stockholders a more complete or detailed account of affairs than has the Board of Trustees to the members of the American Medical Association relative to the affairs of the Association. There has been nothing to conceal in the past; there is nothing to conceal now. The more the profession and the public know of the work of the Association the more heartily will they support it.

We propose, therefore, to discuss in the immediate future the various phases of the work of the Association and the reasons for the opposition to it. Part of this matter we shall discuss editorially, but the greater portion, however, will be found under the head of "Pharmacology," a department of THE JOURNAL which has contained the matter that has stirred up nine-tenths of the opposition, as our readers well know.

HEART BLOCK.

One of the most interesting discussions during the recent meeting of the British Medical Association at Toronto was that on heart block in the Section on Medicine. The term is probably not familiar to most ordinary practitioners of medicine, and the idea which it conveys has really only been introduced into medical science in the last few years. The idea intended by the term is that heart impulses which begin in the auricle do not succeed in passing over into the ventricle because they are blocked in their progress. This "heart block" is due to the fact that a particular bundle of muscle fibers through which the heart impulses are conducted has its function interfered with by some pathologic or traumatic condition and thus prevents the passage of these impulses. The result, as expressed in the picturesque language of Professor Gibson, of Edinburgh, is a divorce between the auricles and the ventricles. Instead of following the auricular beat immediately, the ventricular beat is distinctly delayed or is even suppressed entirely for one or more impulses, the consequence being a distinct irregularity in the heart rhythm.

The ideas which underlie this new theory, for it must not be forgotten that it is not as yet beyond the theoretic stage in spite of the gradual accumulation of considerable pathologic evidence in its favor, began to be evolved about a decade ago. Professor His, the distinguished German anatomist, described a special bundle of muscle fibers which, having their origin in the auricle, pass through the auriculoventricular junction to be distributed in the ventricular septum and in the walls of the ventricles. This bundle of muscle is quite distinct from the neighboring muscular fibers. It has an enveloping connective tissue sheath of its own and is surrounded by a network of nerve fibrils. Its color is even a little different from that of the adjoining tissues, being somewhat paler, and, indeed, this pallor has sometimes been considered to indicate a pathologic condition in the heart muscle and has been pointed out as an evidence of degeneration.

As stated by Professor Aschoff, of Berne, the old idea that heart weakness is the result of a general inflammatory disturbance of the heart muscle, a myocarditis, consequent on the presence of infectious elements in the circulation, has not been sustained by the more careful investigations of recent years. Certain infectious diseases always produce inflammatory changes in the myocardium. These are the exception, however, rather than the rule. Diphtheria nearly always produces such changes. Rheumatism, meaning, of course, acute rheu-

matic arthritis, has a specific effect on the heart muscle and gives rise to certain small pathologic lesions situated just below the endocardium which resemble miliary tubercles in many respects. Beyond these two infections, however, none of this class of diseases has a serious effect on the heart. The old idea of a generalized inflammatory disturbance of the heart muscle is not substantiated. The examination of over 100 hearts with all the modern staining methods and careful microscopical technic has failed to show it. It has been found, however, that in cases where heart failure threatened or actually occurred the essential affection is limited to this bundle of muscle fibers which, because of its discoverer, has been called the bundle of His. In a word, according to Professor Aschoff, an entirely new chapter in cardiac pathology is about to be opened up in the study of this structure and its lesions.

Not a little of the experimental work which demonstrates the truth of these pathologic ideas has been done here in America. Professor Erlanger, of Johns Hopkins, has shown that compression of the bundle of His can, in varying degrees, produce all forms of disturbance of the heart rhythm, even the most serious, and can eventually lead to a fatal termination. The pathologic ideas are also confirmed from the clinical standpoint by a number of English and American observers. Many of the puzzling forms of arrhythmia of the heart, which have so often proved insoluble problems to clinical observers, find a comparatively ready explanation by this new theory. Even the curious set of phenomena known as the Stokes-Adams syndrome, in which there is extreme irregularity of the pulse with stoppage of the heart sometimes that lasts for half a minute or even longer and then gradual resumption of the slow rhythm, and which the hearts of patients suffering from this disorder so frequently exhibit, can be rather readily explained on the score of inflammatory conditions seriously interfering with the conduction of impulses which originate regularly in the auricle, but fail to reach the ventricle because of the heart block that exists.

Sir James Barr emphasized the fact that this as yet remains only a theory, and brought out especially that the question of the conduction of impulses through a muscle band which itself does not contract is a new idea in medicine. There seems to be no doubt that the enthusiasm over recent discoveries has led some of the pathologists and clinicians to minimize the objections to the theory. It is probable that nervous impulses will yet be found to play a rôle coördinate with those which are supposed to be stopped in the bundle of His. In the meantime it is of more than passing interest to realize that something new has arisen in the old field of heart pathology and that the novel theory contains some most suggestive elements which can not fail to help in the understanding of certain cardiac problems, even though eventually it should prove not entirely worthy of acceptance in all the breadth of its present apparent significance.

THE RELATION OF THE MEDICAL EXAMINER TO THE MEDICAL DIRECTOR.

Last week we discussed the relation of the medical examiner to the agent and referred to the fact that many other points remained which it would perhaps be interesting and profitable to take up later.

The relation of the examiner to the home office should be as direct and intimate as possible; the reports should go direct to the home office without passing through the hands of the agent, and any correspondence in reference to cases should be addressed directly to the examiner. Should he be negligent in his duties in any way, the proper remedy lies not in any means of coercion by the agent or the general agent, but in complaint to the medical director, who alone has power of discipline in his department. In a word, it can not be too strongly emphasized that in a properly conducted company the examiner is an officer of the medical department and amenable solely to the medical director for the conduct of his work.

A more frequent personal contact of the medical directors and examiners would conduce to more cordial relations and greater efficiency. We are aware that the position of medical director of a large company is an exacting one, but the chief person concerned in the selection of risks is the examiner, and the mortality experience of the company must depend almost wholly on the care, the wisdom and the honesty with which he does his work. It seems obvious, therefore, that the personnel of the local examiners is the most vital factor in determining the death rates. The chief duty of the director is his selection of the local examiners and the keeping in touch with them, in so far as possible, by personal contact. The state and county societies furnish a convenient place for such contact, and it seems strange that the medical directors are so seldom seen at these societies, whose members, with few exceptions, constitute the most progressive and capable members of the profession. These meetings also afford an opportunity for conferences of the local examiners of an insurance company, which ought to be held at least annually, preferably at the meetings of the state medical societies, either at some unoccupied hour during the session or on the day preceding or following the regular meeting. If an annual meeting of the agents is of sufficient importance to warrant the payment of their traveling and other expenses and the offering of prizes to the most successful, surely similar meetings of the examiners would conduce to better and more effective work, the results of which would ultimately appear in the mortality experience of the company. At such conferences the scientific aspects of life insurance examining should be discussed and the interest of the examiners aroused and stimulated to work for something beyond the mere fee. Under present conditions it may be safely asserted that the great majority of physicians, even among those who are keenly interested in the scientific side of their

clinical work, have little or no interest in life insurance examining beyond the compensation derived from it. This is inevitable so long as they have no means of following their insurance cases and of knowing their ultimate outcome. If each examiner were to keep a careful record, preferably a carbon copy, of every examination, as he keeps a history of his clinical patients, and if then the home office were to inform him of every death among the cases he has recommended, and, when possible, of those whom he has declined, it would be possible for him to develop much the same interest in his insurance as in his clinical work. Only in this way can the best work of the examiner be obtained. The most effective service from a professional or scientific man can never be secured on a purely mercenary basis.

There has been a tendency among the medical directors, especially of the American companies, to exaggerate the importance of what might be called the "clerical" as contrasted with the "judicial" function of the local examiner. In the instructions to examiners great emphasis is laid on the importance of recording all the facts, with the intimation that the medical director will do the rest—will determine, from the mere catalogue of facts as to the family and personal history and physical condition of the applicant, whether or not he is a good risk. The effect of this is to lead the examiner to feel that he has done his full duty when he has perfunctorily recorded the facts called for in the application blank, and that there is little call for the exercise of his judgment as to the rating of the risk. Of course, the actual recording of all the facts is important, but a good-sized book full of such could not enable the medical director, who has never seen the applicant, to judge as accurately of his insurability as a careful examination of the applicant face to face.

QUACK DOCTORS AND QUACKERY.

No articles have appeared that have proved so effective in accomplishing their purpose as have those on "patent medicines" by Samuel Hopkins Adams in *Collier's Weekly*. They set the people to thinking, and that was all that was necessary. The sale of "patent medicines" immediately dropped off, and, in some instances, almost to the vanishing point. This is especially true of such over-advertised frauds as Peruna and Liquozone—the latter, it is stated, being almost wiped out.

Another series of the "Great American Fraud" articles by Adams is now appearing in *Collier's*, this time on "Quacks and Quackery." The first of this series was on "The Miracle Workers;" the second on "The Scavengers," and the third, which has just appeared (September 1), is on "The Specialist Humbug." In this article Adams shows up that prince of humbugs, Oren Oneal, in a way that will open the eyes of the gullible public much more satisfactorily than Oneal himself was ever able to do with his "dissolvent method." Coffee of Des Moines, Powell, Madison and other "eminent" eye and ear quacks are placed in the lime light of publicity and their rascally humbugging methods exposed. Undoubtedly the public will begin to think about the advertising quack and his methods which will result in at least checking his inhumane course. In fact, something has already stirred up the officials of Chicago—where quackery is probably more rampant than in any other city in the world—for the corporation counsel has commenced a crusade against the quacks and fake medical institutions in that city.

Adams points out how to tell whether or not the doctor is a quack: "The advertising doctor who, having a 'cure' to sell, is 'editorially endorsed' by any publication, particularly in the religious field, is a quack. The doctor who advertises secret powers, or newly discovered scientific methods, or vaunts a special 'system' or 'method,' is a quack. The doctor who offers to sell, at a price, a cure for any ailment is a quack, and if he professes a 'special interest' in your case and promises reduced rates, he's throwing in a little extra lying for good measure. Finally, the form-letter is a sure sign. You can tell it because it begins 'Dear Friend,' or 'Dear Mr. So-and-So,' or 'My dear Correspondent,' and contains promises that will fit any case. If, however, you are determined to give a trial to one of these 'specialists,' suggest these terms: that, since he *promises* to cure you, you will deposit to his account the full price of the treatment, to be paid him as soon as you are cured, or substantially benefited, and not before. Then and there negotiations will cease. The promising quack will never stand behind his promises. Through this simple expedient one may guard himself against the whole army of medical scamps, for this is the final test of quackery which none of the ilk can abide."

A feature brought out is that one of the quacks, after expulsion from the American Medical Association, still continued to display in his office his certificate of membership as an index of his good standing. It is certainly gratifying to know that the organization has come to mean so much that even the quack and charlatan strives to take advantage of its prestige for his own purpose. In the meantime it must not be forgotten that these articles in *Collier's* supply an inexhaustible amount of material for the warfare with quackery that will be useful any time during the present generation, not alone against the men who are actually exposed, but also against others whose methods will partake of those which have been so mercilessly shown up on the present occasion.

THE LOURDES PILGRIMAGE.

We have not heard that the annual pilgrimage to Lourdes has been discontinued or materially diminished by the almost unanimous protest of the French physicians. It is a difficult matter to handle, and such religio-medical resorts will probably always be in favor with

certain classes, notwithstanding the perils they involve. If faith were the power to control man's physical ailments that some claim it to be, such excursions ought to be conducive to the public health, but it is a simple matter of observation and statistics to prove that they are just the opposite. A few cases may be benefited from the psychologic effect, but a much larger number are likely to be made worse, and the aggregation of disease in such places and in such pilgrimages is a special opportunity for the spread of contagion and infection. One need not accept all that Zola has described to admit this; unless the conditions are controlled absolutely by skilled sanitarians with a free hand, evils are inevitable and the difficulties of correct sanitation are specially aggravated when the conditions are all dominated by an implicit religious faith in a miraculous shrine to which necessary sanitary measures would seem almost necessarily sacrilegious. We have examples enough in this country in the way of Eddyism, Dowieism, etc., of the conflict between unenlightened credulity and necessary health measures. The fact that a large number of Roman Catholic physicians, presumably devout Catholics, in France, have indorsed the protest against the Lourdes pilgrimage shows that an enlightened religious sentiment is not blind to the evils supported by too credulous fellow religionists. It is to be hoped that if this pilgrimage is to continue year after year it will soon come under the control of those who can deprive it as far as possible of its dangers to public health.

RAGWEED EXTERMINATION.

Now that the hay-fever season is well on, it is a little remarkable that more has not been said about the abolition, near human dwellings at least, of the plants that are popularly supposed to be its cause. The proposition is perhaps too large a one, but there are a few plants that are said to be especially responsible and have not the excuse of being redeemably esthetic or otherwise useful. Among these is the ragweed, ridiculously called by the botanists ambrosia or food of the gods, which grows in almost every suburban vacant lot, and the pollen of which reddens the trouser legs of every man who traverses them at this season. If it deserves its popular reputation, it is the chief offender. We would not like to see the golden-rod exterminated, and it has at least the merit of not infesting the closer built up regions of human habitation, but the ragweed is pretty nearly everywhere and thrives in the crowded haunts of man as well as in the truly rural districts. In Ohio it seems they have a law against it as a public nuisance, but, like the edicts against Canada thistles and poison ivy, it probably is very little enforced. It may be impossible to exterminate the weed, but it has as little apparent excuse for its existence as far as usefulness or innocuousness to humanity is concerned as any other species of our flora, whether it is really the cause of hay fever, as it is supposed to be, or not.

TUMORS OF THE BRAIN.

The study of tumors of the brain is of especial importance by reason of the brilliant therapeutic results at times attained by means of both surgical and medicinal measures. Non-malignant intracranial neoplasms are not at all uncommon, and careful scrutiny will often lead to accurate diagnosis at a time sufficiently early to justify hope of recovery as a result of appropriate treatment. Even in cases in which recovery can not be brought about, marked relief, particularly from distressing headache can be afforded. The timely institution of treatment will avert, also, such serious dangers as blindness from optic neuritis. The results of an interesting analysis of seventy cases of brain tumor are presented by Dr. Arthur Conklin Brush[1] in a communication read before a recent meeting of the Medical Association of Greater New York. The patients varied from 6 months to 72 years of age; 60 per cent. of the cases occurred in persons between the ages of 20 and 50 years, and this distribution is attributed to the greater frequency of syphilitic tumors during this period. Almost 60 per cent. of the cases occurred in males. In 35 per cent. no etiologic factor could be ascertained. Five of the growths were tuberculous; six occurred during the presence of active syphilis, recovery taking place under specific treatment; two others were found to be syphilitic at autopsy. In two cases heredity appeared to be an etiologic factor. Unfortunately, the symptoms of cerebral tumor are not prompt in appearance and regular in development. In three cases they covered a period of four, five and ten years, respectively. In only eight was the duration from two to eight weeks, and in four of these the lesion was undoubtedly syphilitic. Convulsive seizures were among the most prominent early symptoms. These were general or local or of the nature of petit mal. Defective vision occurred next in frequency as an early symptom. Other common clinical phenomena were headache, with nausea, vomiting and vertigo, ataxic gait, hemiplegia, dementia. Eighteen of the growths were subcortical; 17 were situated in the motor cortical region, 7 in the basilar ganglia, 6 were basilar, 6 cerebellar, 5 in and about the pons. In 14 cases the new growth was found to be a sarcoma, in 11 syphilitic, in 9 a glioma, in 7 tuberculous, in 4 cystic, in 1 an angioma and in 1 a psammoma. Fourteen patients recovered under medicinal treatment; 19 were improved by surgical means, and 13 died. The only drugs that are known to influence favorably the growth of cerebral tumors are mercury, iodin and arsenic. The fact that improvement follows treatment with mercury and iodids is not conclusive evidence that the growth is syphilitic. When medicinal treatment is not succeeded in a few weeks by definite improvement and the new growth can be localized in an accessible situation, surgical intervention should be resorted to. Even then irremediable damage may already have been done and the operation itself may result in paralytic phenomena. For this reason the importance of early diagnosis and prompt and vigorous treatment must be obvious.

1. Medical Record, Aug. 11, 1906, p. 215; THE JOURNAL A. M. A., Aug. 25, p. 639.

THE MINNESOTA HEALTH REGULATIONS.

The laws of Minnesota put the formulation of health rules for the state in the hands of the State Board of Health, and this board has recently published a very complete and elaborate set of regulations, covering nearly all the points of public sanitation. Naturally this has stirred up a little opposition. There are always those who see a restriction of their liberties in salutary regulations. So far as we can see from the copy before us, the rules are reasonable and enforcible, and the fact that their making and interpretation is in the hands of the Board of Health makes it the more easy to abolish or to modify such as experience may show to be impracticable or to work undue hardship to any one. In fact, we believe that the details of such measures should be left as far as possible to an intelligent health board rather than to have them embodied in legislative enactments and only changeable by additional legislation. The rules cover the ground very completely, though we should infer that there are no distilleries in Minnesota, as the possibilities of swill milk seem to have been overlooked. We mention this simply as a suggestion to the Minnesota Board of Health. The State of Minnesota is certainly well off in its health officials.

THE VARIABILITY OF SUPRARENAL PREPARATIONS.

The contribution by Dr. Reid Hunt and the reports of Drs. Sollmann and Brown, appearing in our Pharmacology department this week, represent entirely independent investigations, executed on different animals and by somewhat different methods. They are, however, in striking agreement by showing that the various solutions of suprarenal alkaloids on the market are far from uniform. Hunt's examination demonstrated that to produce equal effects it required of one brand five times as much as of another. Specimens obtained from one manufacturer were of uniformly good quality; one specimen obtained from another manufacturer was good, another from the same firm was inferior, while the products of one of the firms, obtained directly from the company, were uniformly bad. The report of Sollmann and Brown shows that the activity varies commonly from 65 to 100, and one sample was inactive. As pointed out by Sollmann and Brown, these results have a purely negative value; they should not be interpreted as determining the relative value of the various brands, but merely as demonstrating the variability of the products. We feel assured that this is a fault which need only be pointed out to be remedied, and that future examinations will reveal a greater degree of uniformity. It might be regretted that the reports do not mention the names of the preparations, but, under the circumstances, it has been thought best to omit these. The object of the investigation and the publication of the results is not to condemn any firm or any preparation, but to call attention to actual conditions regarding these important remedies. It is believed, too, that the publication of these reports will encourage manufacturers to test and standarize their products more conscientiously so that they may be sure that the claims on the label will be borne out. It is to be hoped that the U. S. Public Health and Marine-Hospital Service may consider it wise to repeat the experiments occasionally and in the future to mention the names of the preparations examined. Similar experimental work has recently been done abroad. Cameron, of Edinburgh, has examined a number of suprarenal preparations on the English market and has found several of the preparations uncertain and variable—the American preparations, however, standing well in the investigation. American firms have taken the lead in the manufacture of preparations of suprarenal active principle, and it is hoped they will strive to keep up the standard and so maintain the lead.

Medical News

ALABAMA.

New Sanitarium.—The new sanitarium of Dr. Miles A. Copeland, near Birmingham, is now open, with accommodations for 12 patients.

Fined for Omission to Report.—Twenty-four warrants against physicians of Birmingham were issued August 16, for failure to submit obstetric reports to the city physician, and several of these physicians were fined $1.00 and warned that in case of future offense a heavier fine would be assessed.

Commends State Authorities.—In a public statement issued August 4, State Health Officer Dr. William H. Sanders, Montgomery, commends the health authorities of New Orleans and Louisiana for the care they are exercising to keep yellow fever out of the country. He states that the candor and honesty of the New Orleans physicians has done much toward allaying public fear in this regard.

Ill and Injured.—Dr. James E. Seay, Pratt City, is recovering from the injuries sustained in an accident on the Frisco railroad in July.——Dr. Wilson L. Heflin, Roanoke, was seized with an attack of vertigo August 2, but is now reported to be improving.——Dr. J. Ross Snyder, Birmingham, who has been suffering from typhoid fever at Hillman Hospital, is convalescent, and has been removed to his home.——Dr. Thomas E. Callan, Scottsboro, has been ill for several days in a hotel at Gadsden.

ARKANSAS.

Personal.—Dr. Arthur G. Harrison, Warren, has been selected by the State Board of Health to succeed John M. Young, Little Rock, as physician to the Arkansas Deaf Mute Institute.——Dr. Jefferson D. Southard, Fort Smith, has been appointed physician of Sebastian County, vice Dr. James W. Breedlove, deceased.——Dr. Arthur C. Jordan, Pine Bluff, fractured a rib and sustained serious contusions in a runaway accident August 19.

CALIFORNIA.

Smallpox.—The Secretary of the State Board of Health reports isolated cases of smallpox at Red Bluff and Dunsmuir.

Funds for Fever Fight.—The executive committee of the San Francisco Relief Corporation has appropriated $28,000 for the use of the health board in its war against typhoid fever.

College Notes.—The Oakland College of Medicine and Surgery opened for its fifth annual session August 21.——The College of Physicians and Surgeons, San Francisco, is to be rebuilt on Fourteenth street, between Woodward avenue and Jessie street, at a cost of about $50,000.

Tuberculosis Clinic Opened.—A free dispensary for the treatment of tuberculosis, connected with the Medical Department of the University of Southern California, Los Angeles, was opened August 6. The dispensary is under the direction and supervision of Dr. Frances M. Pottenger, medical advisor of the Anti-Tuberculosis League, assisted by Drs. W. Jarvis Barlow, George H. Kress and Sleeper.

Typhoid Fever.—The mysterious disease reported among the Japanese laborers in Pasadena has been pronounced to be "typho-malarial" fever. Two deaths have been reported.——On August 8 three patients with typhoid fever were removed to the hospital from the relief camp, Mariposa. The camp was located next to a pond of stagnant water and had no kitchen.

Personal.—Dr. Fred P. Clark has been elected superintendent of the Stockton State Hospital, vice his father, Dr. Asa Clark, resigned. Dr. Asa Clark will take charge of the sanitarium which has been under the direction of his son at South and Center streets, Stockton.——Dr. Charles C. Falk has been appointed federal quarantine officer for the port of Eureka, vice Dr. Clarence V. Thompson, resigned.

Sanitation Committee Report.—The sanitation committee of the San Francisco grand jury reported that general health conditions throughout the city are good and that the Board of Health has been active and conscientious in its work. The grand jury expresses to the 400 physicians who worked voluntarily in cooperation with the committee during the weeks following the earthquake and fire, the gratitude of the people of San Francisco.

Additional Sanitary Inspectors.—The San Francisco Board of Health, on the recommendation of the county medical society, has appointed the following medical sanitary inspectors: Drs. Herbert Wallen, Paul Castelhun, Philip Collischon, G. O. Culver, Morton R. Gibbons, A. B. McConnell, Harry R. Oliver, Clarence Quinlan, Walter J. Williams, Harry P. Roberts, E. W. Alexander, Frederick G. Canney, Roland E. Hartley, Charles Clark, Chester Harris, and M. McCauney.

Lane Lectures.—The annual course of Lane Medical Lectures was given in Cooper Medical College, San Francisco, by Dr. John McVail, Glasgow, Scotland, on August 20 and the five following days. The general subject of the lectures was "The Prevention of Infectious Diseases," and dealt with the progress of modern sanitary administration with a description of public health organizations of towns and counties, the abolition of typhus fever by sanitation, the results of modern house conditions, and the importance of building regulations. Then were considered in order, plague, typhoid fever, measles, scarlet fever, smallpox, tuberculosis, and finally the general question of the ethics of disease prevention, showing that the result of the advance in sanitation, vaccination, isolation and health effort has been to improve the race physically and morally, and the outcome is most encouraging for the future.

Hospital News.—The president of the University of California has approved the plan of Dr. Arnold A. D'Ancona, dean of the medical department of the institution, and his confrères, of converting the middle building of the affiliated college grounds south of Golden Gate Park, into a modern hospital, having a free clinic. It is estimated that $50,000 will be required to make the necessary changes, and of this amount $20,000 is available at the present time.——Mrs. Sylvester is erecting a large sanitarium on Wyandotte ranch, near Chico. ——Dr. Thomas J. Randall, Los Angeles, turned the first spadeful of earth for the foundation excavation of the new Sunset Hospital, August 13.

COLORADO.

July Deaths.—During July 799 deaths were reported in the state, equivalent to an annual mortality of 14.16 per 1,000. Of the deaths 19 were caused by typhoid fever, 5 by diphtheria and 4 by scarlet fever, and 33 stillbirths were reported.

Dr. Keith Convalescent.—Dr. John G. Keith, Leadville, who has been suffering from complete paralysis as the result of a lightning stroke last May and has been under treatment at St. Luke's Hospital, Denver, has returned to his home convalescent.

Communicable Diseases.—During July 173 cases of typhoid fever were reported in the state, 105 cases of scarlet fever, 31 cases of diphtheria, and 30 of smallpox. As compared with the previous month, there was a decrease of 5 cases of diphtheria, 3 of scarlet fever, 35 cases of smallpox, and an increase of 110 cases of typhoid fever.

DISTRICT OF COLUMBIA.

Communicable Diseases.—A slight increase occurred during the week in diphtheria; scarlet fever showed a decrease of four cases; typhoid fever continued to increase, there being 74 new cases reported and only 35 discharges, 4 of which were by death, leaving 296 under treatment at the close of the week, as compared with 257 at the close of the preceding week.

Mortality for the Week.—The mortality of the week ended August 18, when compared with the record of the previous week of 1905, shows a gratifying improvement, there being only 103 deaths as compared with 136 during the week ended August 11, and 107 during the same week of 1905. Of the decedent 63 were white and 40 colored, which represents the following death rates per 1,000, per annum: White, 14.1; colored, 21.9; and, total population, 16.4. The principal causes of death were diarrheal diseases, 14; consumption, 13; disease of the heart and cancer, each 5; typhoid fever, 4; and cerebral hemorrhage, bronchitis and meningitis, each 2.

ILLINOIS.

Personal.—Dr. Albert S. Wall, Champaign, has returned after four months in Europe.——Dr. Lewis H. Skaggs, Ellsworth, was overcome by the heat, August 23, but is improving.

Training School at State Hospital.—Dr. Vaclav H. Podstata, superintendent of the Illinois Northern Hospital for the Insane, Elgin, announces the opening of a training school for attendants and nurses on October 1. The school will have a three-years' course and the attendants will be given more time off duty and the hours in various quarters will be shortened.

Advocate Septic Tank.—As the result of a conference held between the Secretary and Assistant Secretary of the State Board of Health and the directors of the State Board of Water Survey, Urbana will probably have in a short time a modern septic tank for the purpose of demonstrating to the officials of the various municipalities the advantages of this method of sewage disposal.

Consumption Camp Started.—The members of the Chicago Tuberculosis Institute have perfected plans for the erection at Dunning of portable houses for patients suffering from tuberculosis, who will be given treatment at the new camp which is now being established. The houses consist of dormitories, 26 by 44 feet, and include two porches, a kitchen and a dining-room. Three of the cottages are now ready and the camp, with accommodations for 20 to 30 patients, will probably be opened this week.

Communicable Diseases.—Typhoid fever is reported to be prevalent in Alton and the necessity of boiling all drinking water is urged.——Joliet reports four cases of scarlet fever. ——Diphtheria has been prevalent in Brereton, and the situation is being investigated by an official of the State Board of Health, who recommended that every house in which there had been a case of diphtheria should be properly disinfected and fumigated, and that all clothes and wearing apparel should be disinfected. He ordered the two families at present under quarantine to be released and the houses fumigated.

Chicago.

College Commencement.—The twelfth annual commencement exercises of Illinois Medical College were held August 23, when degrees were conferred on a class of fifty by Dr. Heman H. Brown, president of the college.

Offers School for Deaf.—Comptroller McGann has received an offer from a woman philanthropist to erect a school for the blind on the Gage farm. The donor proposes to make the school sectarian and expects to put up a building to cost about $50,000.

Typhoid Fever in Rogers Park.—The Health Department has discovered 6 cases of typhoid fever, one of which was fatal, between Morton street and Tuohy avenue, Rogers Park. In this location the residents have no city water service, and are obliged to depend on well water or purchased water for drinking or household purposes.

INDIANA.

To Teach the People.—Dr. William J. Scott, Kokomo, health officer of Howard County, has been authorized by the Board of County Commissioners to have printed for distribution 2,000 pamphlets treating of consumption and typhoid fever, and the best methods of prevention and treatment of these diseases.

Personal.—Dr. and Mrs. Albert E. Bulson, Fort Wayne, have returned from a three months' trip abroad.——Dr. Charles E. Grayston, Huntington, has been appointed district optician and oculist for the Erie railroad.——Dr. Anna M. Lemon Griffin, formerly a practitioner of Muncie, has been sent to the State Hospital at Logansport by the authorities of Kokomo. She is believed to be temporarily deranged.——Dr. Charles H. Eckert, Marion, was operated on at Fort Wayne, August 22. ——Dr. J. Robert Norrel, Richmond, has been elected secretary of the local board of health to fill the unexpired term of Dr. T. Henry Davis, formerly secretary, and at present president of the State Board of Health, resigned.

Communicable Diseases.—The Secretary of the Kendallville Board of Health reports that only two cases of smallpox have developed in that place this summer and anticipates no further trouble. The quarantine has been lifted.——There are about fifteen cases of smallpox in Peru, two of which are in South Peru, and quarantine is in force.——At Hoagland there is reported to be six cases of diphtheria with one death, and the county health officer has quarantined the homes in which the cases were found.——Columbia City has a number of cases of typhoid fever and the city water is being analyzed.——An epidemic of typhoid fever is said to be existing at Russiaville, where 20 cases have already developed. The health authorities have decided the disease was due to the use of inferior and polluted drinking water.

Slaughter-House Regulations.—The State Board of Health has drawn up an ordinance for the control of slaughter-houses, butcher shops, meat and fish markets, and public eating-houses, providing that the animals butchered shall be absolutely sound; that the slaughter-houses shall be made and kept sanitary, and that the offal shall be tanked, cremated, or buried; that cold storage facilities must be provided; that employés must be clean as to personal habits and clothing; that the slaughter-houses shall be provided with ample lavatory facilities; that swine must not be fed on offal; and that meats shipped from other states shall be accepted if the place of preparation is inspected. The regulations for butcher shops, meat and fish markets provide that they shall be screened from May 1 to November 1, and that plants and tools shall be kept clean. The regulations for the public eating houses provide that they shall be kept clean, well lighted and sanitary; that the tables, linen, dishes, utensils, etc., shall be kept thoroughly cleansed; that all employés shall be personally clean and shall wear clean clothing; that all waste water shall be removed and placed in proper receptacles; that all cellars and storage places for vegetables and meats shall be thoroughly disinfected whenever required, and shall be kept clean and free from all decaying matter. Rats, mice, and other vermin shall be excluded from all storage places. All hotels, inns, taverns, boarding-houses and eating-houses shall be subject to public inspection at any and all times.

IOWA.

Personal.—Dr. Frank D. Ayres, Sabula, suffered some severe burns on the face and eyes by the explosion of a gas generator at his residence, August 6.——Dr. Peter H. Schroeder, Traer, sailed for Europe August 25, on the *Philadelphia*.——Dr. Howard E. Campbell, Anita, is seriously ill with heat exhaustion.

Medical Society Meeting.—Botna Valley Medical Society held its annual meeting in Atlantic August 13 and decided to meet in 1907 at Avoca. The following officers were elected: Dr. George A. Spalding, Avoca, president; Dr. Thomas B. Morris, Atlantic, vice-president; Dr. Augustine Grant, Minden, secretary (re-elected); Dr. Harry D. Spencer, Oakland, treasurer; and Drs. William F. Graham, Athens, George A. Cassidy, Shelby, and Harry D. Spencer, Oakland, censors.

State Board Elected.—At the annual meeting of the State Board of Health, July 23, Dr. Fred W. Powers, was elected president and Dr. Josiah F. Kennedy re-elected secretary. Prof. Henry Albert, Iowa City, was elected director of the state laboratory of bacteriology and bacteriologist of Iowa, and Prof. C. W. Kinney, Des Moines, was elected chemist of the board. On the re-election of the secretary, he tendered his resignation, to take effect Jan. 31, 1907. His resignation was accepted and Dr. Louis A. Thomas, Red Oak, was elected to the position and authorized to assume his duties Feb. 1, 1907.

KANSAS.

Infectious Diseases.—The city sanitary department of Topeka reports under quarantine 7 cases of typhoid fever and one case of scarlet fever.

Epidemic of Dysentery.—It is reported that an epidemic of dysentery is afflicting the country north and west of De Soto. Seven deaths have occurred in the last ten days.

Contract Let for Medical Building.—The administration building of the Eleanor Taylor Bell Memorial, the Rosedale adjunct to the Kansas University Medical School, for which the contract has been let, it is said, will cost $100,000, with equipment, and is to be ready for occupancy this fall. The general hospital, the first of the series, is practically completed at a cost of $30,000.

Sanitary Laws Must Be Enforced.—Dr. S. J. Crumbine, secretary of the State Board of Health, is endeavoring to enforce the laws concerning sanitary conditions of the state. He recently issued orders for the fumigation of every schoolhouse in the state during the vacation period. In reply to a letter from a county attorney as to what he should do about it if the order were disobeyed, Dr. Crumbine gave the following citation from the general statutes: "The health officers of the several local boards throughout the state shall perform such duties as this act, the local board of health, or the State Board of Health, shall require. For any failure or neglect of said officer to perform any of the duties prescribed in this act, he shall, on conviction thereof, be fined $10 for each and every offense."

KENTUCKY.

Tuberculosis Hospital to be Built.—The Louisville city council has agreed that immediate steps must be taken to provide temporary quarters at the present city hospital, Louisville, to accommodate the tuberculosis patients. It is proposed to put up a building to cost about $3,000.

Typhoid Fever.—An epidemic of "typho-malarial" fever is said to be raging at Farmer; 25 cases are said to exist and 3 deaths are reported.——The State Board of Health has issued circulars containing directions for the prevention and care of typhoid fever.——An epidemic of typhoid fever is reported at Midland City in the eastern part of Bath County; 30 cases have been reported and several deaths have occurred.

Personal.—Dr. Florence Meder, third assistant physician at the Western Kentucky Hospital for the Insane, Hopkinsville, has accepted a similar position at the Eastern Kentucky Hospital for the Insane, Lexington, and will assume her new duties September 1.——Dr. Malcolm H. Yeaman, Lakeland, has, it is reported, decided to resign as superintendent of the Central Kentucky Hospital for the Insane.——Dr. Meverell K. Allen, health officer of Louisville, who has been in Europe since June, returned August 16.——Dr. Llewellyn P. Spears has succeeded Dr. James W. Guest as physician for the eastern district of Louisville.——Dr. A. D. Park, Lakeport, who has been seriously ill with typhoid fever, is convalescent.

LOUISIANA.

Consolidations.—Arrangements for the consolidation of the Tulane University of Louisiana Medical Department and the New Orleans Polyclinic were consummated, August 30, at the meeting of the Board of Administrators of the Tulane Fund. The Polyclinic will thus become the postgraduate department of the college.

The New Iberia Case of Yellow Fever.—The one case of yellow fever at New Iberia, 125 miles from New Orleans, is still a mystery. The patient, a mulatto boy 12 years of age, has apparently recovered from the disease. The physicians agree that the case was unmistakably one of yellow fever, but thus far they have been unable to determine the source of the infection. Thorough fumigation and disinfection of the town has been carried out by the State Board of Health, and no other cases are expected to occur.

MASSACHUSETTS.

Outdoor Treatment for Tuberculosis.—The State Tuberculosis Commission will, it is reported, recommend to the legislature a campaign in every slum and tenement district of the state, to apply the home cure and outdoor sleeping for the treatment of tuberculosis.

Personal.—Dr. Charles S. Millet, Brockton, has been appointed secretary of the State Tuberculosis Commission.——Dr. J. F. A. Adams has been appointed chairman and Dr. John P. Rand, Monson, secretary of the trustees of the Massachusetts State Sanatorium for the Treatment of Tuberculosis, Rutland.——Under the new state law, which came into operation September 1, Dr. John H. Bannon has been appointed school physician for Lawrence.

Dedication of the New Harvard Medical School.—The dedicatory exercises of the new Harvard medical buildings will occur September 25-26. On Tuesday afternoon the dedicatory exercises will be held at the new buildings, followed by an afternoon tea. In the evening a reception will be given by the alumni and the officers of the Harvard Alumni Association at the Boston Medical Library. On Wednesday morning there will be literary exercises and the conferring of honorary degrees at Sandars' Theater, Cambridge, followed by informal reunions of the medical classes. In the afternoon the triennial banquet of the Harvard Medical Alumni Association and invited guests will be held at Memorial Hall.

MICHIGAN.

Capital Stock Increased.—The Grand Rapids Medical College Equipment Company, owners of the Grand Rapids Medical College, have increased their capital stock from $5,000 to $15,000.

Carstens for Mayor.—Dr. J. Henry Carstens has announced himself as a candidate for mayor of Detroit on the Republican ticket. His platform he announces to be opposition to the eighteen-year franchises proposed for the Detroit Union Railway and reduction in street-car fares. He believes that the people are entitled to a lower rate than six tickets for a quarter.

Personal.—Drs. G. E. Stripp and Henry B. Carey of the attending staff of the Michigan State Hospital for the Insane, Kalamazoo, have resigned, Dr. Stripp to practice medicine in the state and Dr. Carey to accept a chair in a California college.——Dr. George R. Pray, Jackson, physician to the State Prison, was brutally assaulted August 14.——Dr. Henry M. Leach, Saginaw, while returning from Bridgeport, was thrown from his buggy in a collision and was rendered unconscious. He is now reported to be improving.

July Mortality.—During July, 2,779 deaths were reported to the department of state, an increase of 29 over the preceding month and 279 over the corresponding month of 1905. This mortality is equivalent to an annual death rate of 12.7 per 1,000. Of the decedents, 627 were infants under 1 year of age and 678 individuals aged 65 years and over. Diarrheal diseases of infants caused 259 deaths; accidents and violence 222, of which 50 were from drowning; tuberculosis, 220; cancer, 147; pneumonia, 84; whooping cough, 43; typhoid fever, 33; meningitis, 27; measles, 23; diphtheria, 22, and scarlet fever, 14. During the month 3 deaths occurred from lightning. Tetanus was given as the cause of 10 deaths, in 2 of which the fatal result was due to the careless handling of explosives.

Wayne County in Line.—The secretary of the Wayne County Medical Society has issued a pamphlet to call the attention of the physicians of Wayne County who are not members of the local organization to the advantages now offered to its members by the society, and to secure the interest and support of all practitioners of medicine in the completion and perfection of the organization of the profession and of the county. For the annual dues of $4 the following advantages are now offered: 1. Membership in the Wayne County Medical Society. 2. Membership in the Michigan State Medical Socity. 3. The Journal of the Michigan State Medical Society. 4. Privileges of medical defense. 5. Eligibility to membership in the American Medical Association. 6. The advantages to be derived from the completion of medical societies in Wayne County.

Communicable Diseases.—The health officer of Cadillac says that he has 80 lumbermen quarantined in a lumber camp in Henderson County on account of diphtheria. Several cases have been found and one camp has been converted into an isolation hospital.——Typhoid fever is epidemic in Three Oaks, 21 cases have been reported, with 1 death, and 3 patients are reported to be in critical condition. On examination of the standpipe which supplies the town with water, the decomposing bodies of hundreds of young sparrows were found in the water. The standpipe was emptied and is to be cleaned.——Traverse City reports 15 cases of typhoid fever.——Mass City and Greenland, Ontonagon County, are suffering from an epidemic of typhoid fever. There have been 35 cases reported, with 5 deaths.——Several cases of typhoid fever, traceable directly to the milk supply, are reported from Allegan.

MINNESOTA.

Buried with Full Military Honors.—All the officers of the First Infantry N. G., Minnesota, and the Minneapolis companies of the regiment met at the armory August 21 and marched to Lakewood Cemetery, headed by the First Regiment band, and there buried Dr. Reynaldo Juan Fitzgerald, with full military honors. The active pallbearers were officers of the regiment.

Sanatoria in Rochester.—Patients for St. Mary's Hospital are coming in such numbers as to overtax its capacity. To relieve the congestion, two sanatoria are now in process of construction, the first under the charge of Dr. John E. Crewe, who has purchased the E. A. Knowlton residence, and is fitting it up at an expense of about $40,000, and the second is being built by Mrs. Charles E. Chute, which will contain about 35 rooms, involving an outlay of about $10,000.

License Revoked.—The State Board of Medical Examiners has revoked the license of Dr. Van Damme, Minneapolis, convicted of illegal practice.——Dr. Theron H. Bly, who is serving a sentence in the state prison at Stillwater, has been notified that his case is pending, and that the revocation of his license will be voted on at the next meeting of the board to be held about October 1. The board is unanimously in favor of revoking the license of every practitioner against whom a case can be proved.

MISSOURI.

Busy Year for Ambulances.—The ambulances of the health department of St. Louis during the last fiscal year made 10,759 calls, covering a distance of 54,749 miles.

May or May Not be Vaccinated.—In Kansas City this year for the first time the schools will admit pupils whose arms do not show the marks of successful vaccination. Six months ago the council passed an ordinance leaving it optional whether or not the residents of the city shall be vaccinated.

Diseases and Deaths in St. Louis.—During the week ended August 20 there were 215 deaths in St. Louis, an increase of 31 as compared with the preceding week. Gastrointestinal diseases caused 24 deaths; consumption and circulatory diseases, each 23; accidents, including violence, 16; cancer, 13, and marasmus and inanition, each 11.

Asylum Changes to be Made.—At a meeting of the Board of Public Improvements, St. Louis, at which the health commissioner and superintendent of the insane asylum were present, plans were made for the improvement of the asylum under the appropriation recently made. It was decided that provision should be made for 1,600 or 2,000 new patients and that the patients should be housed in groups of 40 each, with one attendant allowed for every 10 patients. For the violent insane a separate building is to be erected to accommodate 160. All the buildings will be provided with offices and sleeping rooms for at least one physician and two or three attendants. A separate residence building is to be erected on the asylum grounds for the superintendent and a separate building also for the accommodation of attendants and outside help. The present asylum building, designed to accommodate 400 patients, now contains 640.

Tuberculosis by Districts.—Statistics have been compiled by the clerk of the St. Louis board of health, showing the number of cases of tuberculosis and the deaths from that disease in each of the seven sanitary districts. The third district, located east of Jefferson Avenue and between Franklin and Chouteau avenues, shows a greater aggregation of cases and deaths than any other district. In the first district, with a population of 77,075, there were 243 cases and 182 deaths; in the second, with a population of 98,336, there were 249 cases and 178 deaths; in the third, with a population of 68,159, there were 267 cases and 190 deaths; in the fourth, with a population of 119,056, there were 264 cases and 183 deaths; in the fifth, with a population of 77,522, there were 192 cases and 130 deaths; in the sixth, with a population of 130,975, there were 271 cases and 187 deaths, and in the seventh, with a population of 123,895, there were 260 cases and 162 deaths.

NEW HAMPSHIRE.

Food Adulteration.—The State Board of Health reported recently that as a result of an examination of 408 samples of prepared foods, 186 were found adulterated, misbranded or below standard.

Donation to Hospital.—Mr. J. J. Glessner of Chicago and Mrs. Garrett A. Hobart of New Jersey, widow of the late Vice-President, have each subscribed $5,000 for the new hospital at Littleton.

Polluted Well Causes Typhoid Fever.—There is an epidemic of typhoid fever in West Canaan. Thirty cases have been traced to the public well and an analysis of the water showed that it was badly polluted. The well has been closed.

NEW YORK.

Typhoid Fever from Bad Wells.—As a result of drinking from polluted wells, five cases of typhoid fever are reported from West Lyons, one of which has resulted fatally.

Did Not Discontinue Practice.—A. Arthur Huntley, Cuylerville, who was charged with illegal practice of medicine on the ground that he had not passed the state board examination, was arrested for a second time on account of his failure to discontinue practice and had his preliminary examination before the police authorities of Geneseo, was bonded for $500 and was held to the Livingston County grand jury.

New York City.

Much Trachoma.—The commissioner general of immigration reports that during the last 60 days 10 persons, on an average, afflicted with trachoma, were deported from New York City each day.

Personal.—Dr. William S. Bainbridge has been elected adjutant professor of surgery and has been assigned to one of the clinics in that department in the New York Policlinic Medical School and Hospital.——Dr. John Warren sailed on the *Lucania* for Liverpool, last week.——Dr. Louis L. Seaman has returned from his trip to East and South Africa.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended August 25, 589 cases of tuberculosis and 151 deaths; 158 cases of diphtheria and 14 deaths; 101 cases of typhoid fever and 22 deaths; 51 cases of measles and 7 deaths; 46 cases of scarlet fever and 1 death; 27 cases of whooping cough and 8 deaths; 9 cases of cerebrospinal meningitis and 10 deaths; 3 cases of smallpox and 4 cases of varicella, a total of 988 cases with 213 deaths.

Favor Removal of Isolation Hospital.—The comptroller is in sympathy with the department of health and the citizens who advocate the removal of the hospital for contagious diseases from Kingston Avenue, Brooklyn, to Barren Island or some other suitable location.——The board of health has applied for an additional appropriation of $325,000 more for a diphtheria pavilion and this will come up for consideration before the board of estimates in September.

Vital Statistics.—The department of health reports that 18,928 deaths occurred during the quarter ending June 30, or 632 more than were reported for the corresponding quarter of 1905. The respective annual death rates are 18.29 and 18.25 per 1,000. During the same period there were 25,692 births. Tuberculosis claimed 2,653; pneumonia, 1,527, and violence, 1,223, including 67 homicides and 191 suicides. Of children under 5 years of age 6,237 died. During the year 8,967 deaths occurred in tenements, 6,362 in institutions and 2,936 in dwellings.

New Officers for Health Department.—The following officers have been suggested by the acting medical officer of the department and approved and appropriations made by the board of estimates: Chief clerk, with a salary of $4,000; medical inspector, $2,100; two sanitary inspectors, $2,100 and $3,000, and inspector of food in charge of corps, $2,550. Five clerks, two chemists, a laboratory assistant and several other minor appointments were also provided for. The board has asked for an automobile, to cost not more than $3,000, for the use of the assistant sanitary superintendent of the borough of Manhattan. The board of aldermen has been requested to allow the department this automobile.

NORTH CAROLINA.

Medical Department Opens.—The medical department of Wake Forest College opened August 29, and reports an encouraging outlook for a successful year.

Hospital Completed.—The hospital connected with the Wake Forest College is almost completed and will soon be available for the use of students and private patients.

Personal.—Dr. Lewis M. Gaines has returned to Wake Forest College from his vacation.——Dr. Watson S. Rankin of the medical faculty of Wake Forest College, who has spent the summer in Boston, has returned.

OHIO.

Typhoid Fever in Toledo.—Twenty cases of typhoid fever are reported in Toledo in the territory bounded by Cherry and Grange streets.

Physicians Do Not Report Births.—As the result of the failure on the part of the Cleveland physicians to report the births, only 261 were reported for the year ended March 31, 1906. The penalty for failure to make reports has never been enforced, it is said.

Gift to Library.—It is reported by the Associated Press, Cincinnati, that General E. P. Walker, recently deceased, bequeathed to the Lloyd library, Cincinnati, his entire library and collection of manuscripts, and has in addition given a fund of $30,000 to be devoted to the securing of qualified experts to make original investigations in the practice of medicine and pharmacy and a study of the specifications of medicine. The restriction in this direction is that the researches are not to be confined to the theoretic side of medicine.

Personal.—Dr. Robert W. Purdy, Bradyville, is reported to be seriously ill with brain disease.——Dr. William Brundage has been made assistant physician to the Columbus State Hospital, vice Dr. William Richardson, resigned.——Dr. E. H. Rorick, superintendent of the State Institution for the Feeble-Minded, Columbus, sailed for Europe August 11.——Dr. Mark Millikin has been re-elected health officer of Hamilton, and Drs. Linus H. French, Clyde W. Hodges and John A. Burnett, district physicians.——Dr. Francis M. Fitton was appointed to fill the position of health officer until the return of Dr. Millikin, who is now in Colorado for his health.——Dr. Thomas C. Parks, Akron, has been appointed a member of the board of censors of Starling Medical College, Columbus.——Dr. John H. Lowman, Cleveland, who was operated on for appendicitis a few weeks ago, is convalescent and has been removed to his summer home.——Dr. Myron S. Clark, Youngstown, has been appointed pension examiner, vice Dr. Albert L. King, deceased.

Faculty Changes at Starling.—The Starling Medical College opens for the fall term September 13. The following changes in the faculty are announced: Dr. Starling Loving, dean, resigned, and Dr. Charles S. Hamilton, elected in his place; Dr. Frank Winders, registrar, vice Dr. Curtis C. Howard; Dr. D. Tod Gilliam was made emeritus professor of gynecology, and Dr. Earl M. Gilliam advanced to the chair of gynecology; Dr. Isaac B. Harris, professor of physical diagnosis; Dr. Frank Winders, professor of applied therapeutics; Dr. Harry W. Whitaker, associate professor of theory and practice to succeed Dr. John H. Upham, promoted to associate professor of therapeutics and practice of medicine; Dr. Starling Loving, clinical professor of theory and practice of medicine; Dr. Joseph H. Jones, associate professor of materia medica; Prof. Clair A. Dye, lecturer on materia medica; Dr. Sylvester J. Goodman, assistant to the chair of operative and clinical surgery; Dr. Wells H. Teachnor, assistant to the chair of obstetrics, and Dr. P. D. Shriner, clinical demonstrator in obstetrics.

PENNSYLVANIA.

To Prevent Spread of Whooping Cough.—State Health Commissioner Dixon has ordered the placarding of houses in which whooping cough exists, the placards stating, "All persons are notified of the presence of this disease and are warned of the danger of visiting or coming in contact with those suffering from it."

Warning to Hotel Stewards.—A special agent sent by the state dairy and food commissioner attended the meeting of the International Association of Hotel and Club Stewards, in session at Niagara Falls this week. With the agent were sent 75 samples of adulterated foods collected by the department agents throughout the state. The object was to warn the stewards against purchasing adulterated foods for use in hotels and clubs.

Personal.—Dr. Fred E. Kress has been made physician of the Lilly, board of health.——Dr. William N. Stein has been re-elected president of the Shenandoah board of health.——Dr. Gustav T. Fox and family, Bath, have sailed for Europe.——Dr. Thomas N. McKee, Kittanning, is suffering from an infected wound of the foot.——Dr. Oscar Lindenmuth, Ringtown, has been placed in charge of the *x*-ray department of the Indiana State University, Indianapolis.——Dr. Calvin H. Elliott, Harrisburg, who was operated on for appendicitis at the Medico-Chirurgical Hospital, Philadelphia, August 6, is rapidly improving.

Hospital News.—After five years of agitation and controversy, it has finally been decided that Pittsburg is to have a United States Marine Hospital on the old arsenal site at Thirty-ninth Street and Penn Avenue.——The directors of the Washington City Hospital Association have decided on the location for a new hospital at the corner of Donnan Avenue and Second Street. The new building is expected to cost about $25,000.——The Alfred O. Deshong sanitary cottage for the treatment of patients suffering from tuberculosis or other communicable diseases originating in the Chester Hospital, has been turned over to the latter institution. The cottage was built and donated by Alfred O. Deshong, Chester.——A new hospital is to be established at Siverly.

Typhoid Epidemic.—An epidemic of typhoid is said to exist in Freedom township, where three deaths have already occurred.——Five cases of typhoid fever are reported in one family at Hatboro.——Typhoid cases have greatly increased in McKeesport during the last few days.——Oakmont reports 30 cases of typhoid fever and Verona 40 cases.——Pittsfield has 7 cases of typhoid, reported to have been imported from Atlantic City, N. J.——The alarming condition of the typhoid situation in Pittsburg is evidenced by the posting of warnings against the drinking of unboiled water.——Typhoid fever has broken out at Berwyn and Devon, 18 cases of the disease existing at

present. One of the largest dairies in the vicinity is quarantined, the owner being one of the victims of the disease. Milk supplied by the dairy is suspected.——At Hamburg there are an alarming number of cases, about 100 in the borough and surrounding country, new cases being reported daily.——Mount Union also is afflicted with the malady.

Pure-Food Crusade.—The state dairy and food commissioner announces that he has ordered hundreds of prosecutions against candy sellers and manufacturers in western Pennsylvania. During the last 30 days 625 samples of candies were purchased in Allegheny County, 80 per cent. of which were found to contain one or more chemicals, and some of them three chemicals. Warrants have also been issued against 27 dairymen of Allegheny County for selling milk in which formaldehyd and other preservatives were found. Many manufacturers and wholesale firms selling their products in this state have escaped prosecution because they are not within the jurisdiction of the health commissioner. Dr. Warren recommends that all manufacturers doing business in the state, but having their headquarters in other states and countries, shall be compelled to have a resident manager in this state, who shall be held responsible for adulteration of any food products sent into the state by the firm which he represents. Governor Pennypacker has sent a letter to Dr. Warren, signifying his approval of the success attained in the prosecution of the pure-food laws.

Philadelphia.

Public Baths.—As a result of the cooler weather of last week, from an average weekly attendance of 500,000, the number of bathers at the city's baths dropped to 398,209. Of this number 73,608 were men, 6,117 women, 294,674 boys and 23,810 girls.

Automobile Ambulance.—A contract has been awarded by Dr. Coplin for the construction of an automobile ambulance for the Philadelphia Hospital, to cost $3,200. The ambulance will have accommodations for 4 patients, 2 nurses, a surgeon and a chauffeur.

Fever Ship Quarantined.—The British steamer *Elswick Lodge*, from Tampico and Mexico to Philadelphia via Norfolk, was placed in quarantine at the Delaware Breakwater, August 30, on account of the illness of its second mate with what appeared to be yellow fever.

New Antitoxin Station.—The bureau of health has established an antitoxin depot for the southern part of West Philadelphia at the corner of Fiftieth Street and Baltimore Avenue, where supplies of antitoxin and culture, typhoid and sputum outfits may be obtained.

Candy Dealers Fined.—By direction of Dr. Warren, dairy and food commissioner, 20 candy dealers were fined for selling candy containing sulphites. The fines aggregated $2,070. The New York Glucose Company, will, in conformance with its previous declaration, pay all fines.

Expense for Health Protection.—The expenses for the preservation of health in this city for the year 1904 amounted to $533,510, or 38 cents per capita, as shown by the statistics just compiled by the census bureau. This outranks the expenditures for the same purpose of the four other largest cities in the United States.

Improvements at Blockley.—The contract has been awarded for alterations to buildings of the Philadelphia Hospital to provide better accommodations for the insane. The work is to be completed in 120 days, at a cost of $77,349. Next week 580 male inmates will be transferred to the annex formerly a part of the Philadelphia Museum, and the quarters thus vacated will be added to the insane department.

Personal.—Dr. William Ruoff has returned from Europe.——Dr. and Mrs. George B. McClellan will return from England this month.——Dr. Joseph S. Gibb, who is in Carlsbad, will return home October 1.——Dr. W. Marshall Hinkle sailed for Europe August 29.——Dr. C. M. Gray has been appointed outdoor physician at Station J, for the Ninth and Tenth wards.——Dr. William W. Richardson has been appointed assistant physician in the insane department of the Philadelphia Hospital.

Money for Charity.—At the convention of the Independent Order of Sons of Jacob, held in this city, a plan was formulated by the association whereby each member is to be taxed 10 cents, and the amount realized, $2,500, will be distributed among the hospitals of Philadelphia without respect to creed. Resolutions were also adopted providing for a relief fund to be devoted to the Hospital for Consumptives at Denver, Colo.——By the will of the late Alfred H. Kellogg, after the death of several beneficiaries, the Episcopal Hospital will receive $6,229 and the Bryn Mawr Hospital $1,150.

Health Report.—The total number of deaths during the week aggregated 407, a decrease of 74 from those of last week and a decrease of 44 from the corresponding period of last year. The principal causes of death were: Typhoid fever, 13; whooping cough, 7; diphtheria, 4; tuberculosis, 41; blood poisoning, 4; cancer, 14; apoplexy, 12; paralysis, 7; heart disease, 20; acute respiratory diseases, 27; diarrhea and enteritis, 66; cirrhosis of liver, 5; Bright's disease, 26; premature birth, 15; congenital debility, 10; accidents, 10; injuries, 7, and marasmus, 18. There were 184 cases of contagious diseases reported, with 17 deaths, as compared with 149 cases and 19 deaths the previous week.

GENERAL.

Erie Hospital Car.—The Erie Railroad has added to its equipment a complete hospital on wheels. This car is to be used in cases of accident, when the nearest hospital is so far away that operations on the spot become necessary. The car is remarkably complete in its entire equipment.

Yellow Fever in Honduras.—Dr. G. M. Guiteras of the Public Health and Marine-Hospital Service reports that there is yellow fever at Ceiba. This place has never before been infected with yellow fever, but Louisiana established a quarantine against it two months before the first case was reported.

Western Surgical Election.—At the annual meeting of the Western Surgical and Gynecological Association, held at Salt Lake City, August 31 and September 1, the following officers were elected: President, Dr. Charles W. Oviatt, Oshkosh, Wis.; vice-presidents, Drs. S. C. Baldwin, Salt Lake City, and Jabez N. Jackson, Kansas City, Mo.; secretary-treasurer, Dr. Arthur T. Mann, Minneapolis. St. Louis was selected as the place for holding the next annual meeting. The account of the proceedings of the meeting will be continued next week.

Cholera in Manila.—During the week ending July 7, 145 cases of cholera were reported, with 132 deaths. Dr. Victor C. Heiser, Commissioner of Health, states that the work of the Bureau of Health is greatly hampered by the propaganda which is being carried on by the Filipino and Spanish press against the isolation of the sick, the consequence being that frequently cases of cholera are not discovered till after death. Under these circumstances, he states, it is difficult to see how much relief can be expected in the local cholera situation for some time to come, the weather conditions during July and August being most favorable for its propagation and spread.

The Books Sent to California.—A member of the California relief committee writes, unofficially, stating that the committee has already received as large a supply of second-hand textbooks as it can dispose of, as there is comparatively little call for such books, unless they are standard. Files of journals, bound or unbound, if in complete volumes, are of more value. We are informed that on some of the consignments of books the freight charges amounted to more than the actual value of the books received, simply because the latter were out of date or worthless, or both. It should be borne in mind, therefore, that old books, except standard ones, should not be sent.

Report of the Health of the Philippines for 1905.—This report covers the work of the Bureau of Health for the Philippine Islands from Sept. 1, 1904, to Aug. 31, 1905. During this period Major E. C. Carter of the medical department of the United States Army was commissioner of public health until April 27, 1905, when he was succeeded by Dr. Victor C. Heiser of the United States Public Health and Marine-Hospital Service. The report reflects much credit on these officers and their assistants, reporting much important work in all the various lines of activity. Most of the important points mentioned have been noted in THE JOURNAL from time to time, as they occurred. Details are given of the manner of enforcing the sanitary ordinances. In regard to vaccination against smallpox, the report states that a law existed during the Spanish control making vaccination compulsory, but the chief good which resulted from it was that the people were accustomed to its existence on the statute books and did not object to it or strenuously resist its application at the hands of the Americans. Difficulties were encountered in a few provinces and the vaccinators were at once withdrawn and the pueblos left to themselves. Within six months the contrast between the vaccinated and the unvaccinated pueblos was so great that the chief men of the objecting municipalities requested the vaccinators to return. In regard to cholera the report states that among medical men the opinion is gaining ground that the disease is indigenous to the Philippines. It is stated that the number of lepers in the Philippines is estimated at from 10,000 to 30,000. The bureau of health at the time this report was

written had a record of only 3,715, of whom 2,377 are males and 1,338 females. The leper problem is stated to be far from an unsatisfactory solution. The new colony which was opened at Culio (see THE JOURNAL, July 28, 1906, page 283), will be the beginning of a new order of things in the care of these unfortunates. A number of pictures illustrating the work of the bureau of health forms an interesting addition to the book. Among them are pictures of the board of health ambulance, the old buildings of the San Lazaro Leper Hospital at Cebu and the present leper hospital, the Sampaloc Hospital at Manila, a group of American sanitary inspectors and one of assistant inspectors and sanitary police, a board of health station in the San Nicolas district, Manila; types of the Filipino, Spanish and American houses in Manila; the Nipa district, the municipal slaughter house and St. Paul's Hospital, Manila. There are numerous illustrations of other points of interest in and around Manila and in other parts of the islands.

CANADA.

Ontario Association Election.—The annual meeting of the Ontario Medical Association was held in Toronto August 20. After a short executive session the officers were re-elected and it was decided to meet in Toronto in 1907. Dr. George A. Bingham, Toronto, was re-elected president, and Dr. Charles P. Lusk, Toronto, secretary.

McGill University to Honor British Doctors.—Sir Thomas Barlow, Bart., F.R.S.; Sir William Broadbent, Bart., F.R.S.; Sir Victor Horsley, F.R.S., and Dr. T. Clifford Allbutt, F.R.S., have been recommended by the board of governors of McGill University to receive the honorary degree of LL.D. of that institution. The degrees will probably be presented *in absentia* at the next convocation.

Montreal's Annual Medical Report.—According to the annual report of the medical health officer, Dr. L. Laberge, Montreal, for the year 1905, the average death rate of the city per 1,000 of the population was 20.6. This was 0.2 less than in 1904. The birth rate was 0.15 per 1,000 higher than in 1904. The average of births for a period of 19 years has been 37.92 per 1,000. The birth rate in Montreal is higher than in Toronto by 13.81 per 1,000. The marriages in Montreal in 1905 were 10.31 per 1,000, which is an increase of 0.10 over 1904.

Canadian Medical Protective Association.—That this society is progressing very favorably was shown by the annual report of its president, Dr. R. W. Powell, Ottawa, at the annual meeting in Toronto, August 20. He stated that it has now a membership of about 450, has never lost a case it has undertaken to defend, is sound financially and promises to do a great deal of good for the Canadian medical profession. Dr. R. W. Powell, Ottawa, was re-elected president, and Dr. Fenton Argue, Ottawa, secretary-treasurer in the place of Dr. J. A. Grant, Jr., Ottawa, resigned.

Canada Association Meeting.—The thirty-ninth annual meeting of the Canadian Medical Association, held in Toronto August 20, was only an executive session, owing to the meeting of the British Medical Association. The attendance was about 75, and the chief item of business was the reception of the report of the committee on reorganization, which was presented by the chairman, Mr. I. H. Cameron. The report took the form of a proposed new constitution and by-laws patterned somewhat after the constitutions of the American Medical Association and the British Medical Association. After some discussion it was decided that the subject should be thoroughly dealt with next year. Montreal was selected as the place of meeting in 1907. Dr. A. McPhedran, Toronto, was re-elected president; Dr. H. B. Small, Ottawa, was re-elected treasurer, and Dr. George Elliott, Toronto, was re-elected general secretary.

FOREIGN.

Pettenkofer Prize Awarded to Schaudinn.—The prize of $300 from the Pettenkofer endowment at Munich has been awarded to the recently deceased Fritz Schaudinn for his discovery of the spirochete of syphilis, and has been paid to his widow at Hamburg.

Adolf Witzel Endowment.—The recently deceased professor of dentistry at Bonn, Adolf Witzel, bequeathed about $2,500 to the *Centralverein deutscher Zahnaerzte*, the national association of dentists, to promote the study of stomatology at the German universities.

Scarcity of Psychiatrists in Germany.—Already the cry goes forth that there are not enough young psychiatrists to supply the demand in the German asylums. In order to attract young physicians to this branch of medicine the salaries and perquisites are being increased in some parts of Germany. They already range rather above the average, we understand.

Subjects of Berlin Prize Essays.—The subject announced by the medical faculty at Berlin for the essays in competition for the royal prize is: "Comparative Research on the Histogenesis of the Heart Musculature to Determine Specially Whether the Muscular Tissue Represents Syncytium or Belongs to the Cell Domain." The subject for the city prize essay is: "Research on the Normal and the Pathologic Anatomy of the Appendix."

Kahlbaum Endowment.—The mother of the late professor of chemistry at Basle, George W. A. Kahlbaum, has presented $9,500 to the national society for the study of the history of medicine (*Deutsche Ges. f. Geschichte der Med. u. Naturwissenschaften*), which was recently founded by her deceased son. She has also given the Berlin branch of the same society $5,000, the total of the Kahlbaum endowment thus amounting to nearly $15,000.

German Naturforscher Society.—The German Association of Physicians and Scientists, better known as the "Naturforscher Association" or *Gesellschaft deutscher Naturforscher und Aerzte*, was organized for the advancement of science in all its branches. It now numbers 2,800 members and has had several bequests and endowments and frequently has a surplus left from its largely attended annual meetings. Its total capital is now about $51,000. The seventy-eighth annual meeting is to be held this year at Stuttgart, September 16 to 22. The sections for medicine and surgery form an important gathering of physicians and surgeons from all over the German-speaking countries.

Prizes Offered by Brazilian Academia Nacional de Medicina.—Among the subjects for essays to be offered in competition for the prizes are "Heat Fevers in Rio de Janeiro;" "Influence of Malaria as Determining Factor in Aortic Affections;" "Normal Stature of Children Under 2 at Rio;" "Ideal Treatment of Aneurisms;" "Etiologic Rôle of Popular Diet in Rio;" "Surgical Treatment of Tuberculous Joint Affections;" "Comparative Frequency of Syphilis and Tuberculosis in Children in Rio;" "Indications and Contraindications for Obstetric Intervention;" "Study of the Mineral Waters of Brazil;" and "Study of the Native Plants that Induce Paralysis or Convulsions." The prizes consist of gold and silver medals, but the Alvarenga prize of about $60 and the Dos Santos prize of about $50 will be given respectively for the best work in any branch of medicine and the best medical study of a Brazilian plant.

Prophylaxis of Cancer and Venereal Disease.—Prof. J. Dollinger is distributing a circular warning of the danger of cancer and the benefits of early operation, giving the circular to all the inmates of his surgical service. The circular states the early signs of cancer, and urges every one to apply to a physisician for examination when there is long-continued hoarseness or difficulty in swallowing, or symptoms attract attention to the stomach, or a bunch can be palpated in the abdomen, breast or elsewhere, or there is pain in defecation or the stools or urine are blood stained, or there is a discharge from the genitals at an unusual time. Professor von Bokay urges diligent collecting of statistics and of all facts bearing on cancer as a preliminary to the next international medical congress which is to be held at Budapest in 1909, as already announced. When data have been collected he hopes for a successful national cancer congress to collate and discuss the question of cancer exclusively before the international congress. A letter from Budapest in the *Med. Klinik* for August 12 adds to the above statements that the National League for the Repression of Venereal Diseases has appealed to the medical inspectors of the schools to enlighten youth in the first year or so in college in regard to the dangers of sexual intercourse. The directors of the high schools and colleges are urged to have the customary closing banquet a mid-day instead of a night function.

Non-use of Tuberculosis Sanatoriums in France and Belgium.—A large and supposedly model sanatorium for the tuberculous poor was erected in France three or four years ago and one in Belgium. Our French and Belgian exchanges are now commenting on the fact that these sanatoriums are practically empty all the time, with scarcely a dozen inmates to take advantage of the accommodations freely offered. The reason for this is stated in a Belgian exchange to be the fact that the sick wage-earner, as long as he is able to be about, continues at work to keep his family from starving. He does not give up and go to a sanatorium until he has reached the end of his forces, and then it is usually too late for chance of recovery. The public sanatoriums in France and Belgium lack the basis on which they have flourished to such an extent in Germany, that is, the compulsory insurance against sickness enforced for wage-earners. These sickness insurance companies

are on the alert to detect tuberculosis in its incipiency, and those affected are obliged to take a serious course of treatment, generally in a sanatorium, while the indemnity paid insures the support of the family left at home. The article in question states that lacking this fundamental and beneficent legislation, the sanatoriums and convalescent homes in Belgium will continue to remain empty. It adds that the sickness insurance companies in Germany make large profits out of the business while the morbidity of the populace is being notably reduced, the working capacity increased, and distress from poverty due to sickness of the breadwinner has enormously diminished. A Belgian capitalist bequeathed a million dollars five years ago to erect a sanatorium for women, but the authorities are postponing its construction until signs indicate that it is needed.

LONDON LETTER.

(From Our Regular Correspondent.)

LONDON, Aug. 18, 1906.

Drastic Bill to Prevent Juvenile Smoking.

A select committee of the house of lords has adopted a drastic bill to prevent juvenile smoking. Its most striking provisions are as follows: "Every child under the age of 16 who shall be found in the possession of cigarettes or smoking tobacco in any form shall on conviction be liable to a penalty of not exceeding 40 shillings for each offense and shall be subject to the provisions of the Youthful Offenders' Act, 1901. Every person who knowingly sells or suffers to be sold or delivered any description of cigarettes to any child under the age of 16 years shall be liable to a penalty not exceeding 40 shillings for the first offense and not exceeding 5 pounds for every subsequent offense." The committee recommend that police constables shall be empowered to stop all youths apparently under the age of 16 seen smoking in any public place and allowed to confiscate any tobacco found on them. In making this report the committee were much impressed by the unanimous opinion of all the witnesses, including representatives of the tobacco trade, that "the habit of juvenile smoking produces indirectly a number of ills, facilitates the work of disease and leads to habits of drink. They were especially impressed by the evidence to the effect that there are no signs of physical deterioration among girls. The witnesses all said that the reason for this was that girls are, generally speaking, entirely free from this habit." It was proved conclusively that juvenile smoking has increased rapidly of recent years, and it was urged that while its present influence is bad, the effects must be worse in future generations.

The Declining Birth Rate.

The phenomenon of a declining birth rate, which has been noted several times before in THE JOURNAL, still continues. The births registered in the second quarter of 1906 were in the proportion of 27.5 annually per 1,000 of the population. This is the lowest birth rate recorded in any second quarter since civil registration was established. The mean rate in the preceding 10 quarters was 29.1. The natural increase in the population of England and Wales during the quarter by excess of births over deaths was 111,860 against 117,850 in the second quarter of 1903, 114,389 in 1904, and 113,726 in 1905. The marriage rate is also declining. During the first quarter of this year it was 10.7 against an average of 11.4 in the first quarters of the preceding 10 years. The death rate shows some improvement. During the second quarter of 1906 it was 14.6 against 15.9 an average of in the preceding 10 years. Infantile mortality was 102 deaths per 1,000 registered births against an average of 119 in the preceding years.

Dyed Meat.

The sale of unwholesome food is by no means confined to Chicago products and the methods of sophistication are endless. A butcher has been summoned for having on his premises 105 pounds of meat intended for the food of man which was unwholesome. Among the articles found were two tins of beef brawn which was the product of a diseased animal. Dr. Bousfield, public analyst, stated that on cutting the meat open he found an abscess cavity from which he took a soft pulpy substance, microscopic examination of which revealed the ordinary bacteria of suppuration. The animal must have suffered from antemortem inflammation. The meat had been colored with an analin dye, producing a salmon tint. A fine of $4 and $50 costs was imposed.

Pharmacology

THE COMPARATIVE PHYSIOLOGIC ACTIVITY OF SOME COMMERCIAL SUPRARENAL PREPARATIONS.

Reid Hunt, M.D.

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WASHINGTON, D. C.

The Hygienic Laboratory has recently been requested by another office of the government to compare the physiologic activity of certain suprarenal preparations which had been offered at different prices on competitive bids. After a consideration of various methods proposed for standardizing such preparations (colorimetric methods by Abel, Batelli and others; effect on the pupil of the frog's eye as recommended by Ehrmann, etc.), it seemed that the blood-pressure method was the most suitable for my purposes, especially as the question to be answered referred more to relative than to absolute strength. By observing certain simple precautions it is possible to obtain very uniform results by the blood-pressure method. The most important of these precautions is to have the animal in such a condition that as few factors as possible are to be considered. The animal should be thoroughly anesthetized, and preferably curarized also, so as to avoid effects on the blood-pressure of any movements or disturbances in respiration resulting either directly from the drug or from changes in the blood pressure. The vagi should be cut or atropin used, so as to exclude the changes in the heart rate due to the direct action of the drug on the cardio-inhibitory apparatus or to the effect of changes of blood pressure on this apparatus. All injections should be made at a uniform rate and into veins as remote from the heart as possible. In the present experiments the injections were invariably made into the saphena veins and the duration of the injection accurately recorded on the kymograph. The various preparations to be compared were injected into the same animal and at intervals of a few minutes of each other; one preparation was injected into the right saphena vein, the other into the left, and the injections were repeated a number of times. The blood pressure was taken from the carotid artery.

FIRST SERIES.

In this series three preparations of the active principle were examined, all purporting to be solutions 1 to 1,000. The price asked for two, A and B, was about 70 cents per ounce; for the other, C, 42 cents.

Two bottles of each were purchased on the open market; no difference in strength between the two bottles of the same preparation was found.

Experiment, April 2.—Rabbit, 2,140 gm.; anesthetized with urethane and chloral hydrate; vagi cut.

Time.	Preparation.	Blood-pressure in mm. of mercury.		
		Before.	After.	Rise.
1:49	A, 1 to 25,000.....1 c.c.	105	157	52
1:53	B, 1 to 25,000.....1 c.c.	103	154	51
2:13	C, 1 to 25,000.....1 c.c.	103	140	37

The rise of blood pressure from equal amounts of A and B were practically equal and about 1.4 times as great as that from C.

Experiment, April 6.—Rabbit, 2,250 gm.; urethane and chloral; curare; vagi cut.

Time.	Preparation.	Blood-pressure in mm. of mercury.		
		Before.	After.	Rise.
2:02	C, 1 to 25,000.....7 c.c.	90	151	61
2:05	B, 1 to 25,000.....1 c.c.	90	192	102

The rise of pressure from B was nearly 1.7 times as great as that from an equal amount of C.

Later in this experiment the following results were obtained:

Time.	Preparation.	Blood-pressure in mm. of mercury.		
		Before.	After.	Rise
3:31	C, 1 to 25,000.....1 c.c.	78	108	30
3:34	B, 1 to 25,000.....1 c.c.	78	132	54

The rise of pressure from B was 1.8 times as great as that from C.

The following results were obtained with C and A:

Time.	Preparation.	Blood-pressure in mm. of mercury.		
		Before.	After.	Rise.
3:59	C, 1 to 25,000.....1 c.c.	80	116	36
4:01	A, 1 to 25,000.....1 c.c.	78	142	64
4:03	C, 1 to 25,000.....1 c.c.	81	124	43
4:10	A, 1 to 25,000.....1 c.c.	79	146	67
4:21	C, 1 to 25,000.....1 c.c.	82	122	40

Thus the rise of blood pressure from A was about 1.6 times as great as that from C.

In the following experiments equal amounts of different dilutions were injected:

Experiment, April 9.—Rabbit, 1,850 gm.; urethane and chloral hydrate; curare; vagi cut.

Time.	Preparation.	Blood-pressure in mm. of mercury.		
		Before.	After.	Rise.
3:38	C, 1 to 18,000.....1 c.c.	105	135	30
3:41	A, 1 to 25,000.....1 c.c.	102	138	36
3:55	C, 1 to 11,000.....1 c.c.	73	130	57
3:59	A, 1 to 25,000.....1 c.c.	75	127	52
4:08	A, 1 to 25,000.....1 c.c.	68	123	55
4:11	C, 1 to 15,000.....1 c.c.	70	124	54
4:15	A, 1 to 25,000.....1 c.c.	68	121	53

Thus when the ratio of the strength of C to that of A was about 1.7 to 1, approximately equal rises of blood pressure were obtained from equal amounts of the preparations.

In another experiment the following results were obtained:

Experiment, April 10.—Rabbit, 1,720 gm.; urethane and chloral; curare; atropin.

Time.	Preparation.	Blood-pressure in mm. of mercury.		
		Before.	After.	Rise.
3:57	C, 1 to 12,500.....1 c.c.	86	145	59
4:00	A, 1 to 25,000.....1 c.c.	84	144	60
4:13	A, 1 to 100,000.....1 c.c.	82	122	40
4:15	C, 1 to 50,000.....1 c.c.	76	126	50
4:19	A, 1 to 85,000.....1 c.c.	79	127	48
4:23	C, 1 to 50,000.....1 c.c.	75	122	47

Here again in order to obtain equal rises of blood pressure it was necessary to use a solution of C about 1.7 times as concentrated as of A. The rise of pressure in the first two injections was maximal; a weaker solution of each would probably have caused as great an effect.

CONCLUSIONS.

The above experiments show that equal amounts of equal dilutions of A and B have equal effects on blood pressure; (2) that A and B cause from 1.4 to 1.8 times the rise of blood pressure as do equal amounts of C, and (3) that in order to obtain equal rises from equal amounts of C on the one hand and A and B on the other it is necessary to have the solution of the former about 1.7 times as concentrated as of the latter. Hence we may conclude that B and A were of about equal strength and that they were about 1.7 times as active as C. The apparent discrepancy under (2) is readily explained as follows: In those cases in which the rise from A (or B) was about 1.4 times as great as that from C the effect of the former was already maximal and the same effect would have been produced by solutions weaker than the one actually employed.

It is interesting to note that the prices at which these preparations were offered were in direct proportion to their strength; the price asked for A and B was about 1.7 times as great as that of C, and the strength of the former was about 1.7 times as great as that of the latter.

SECOND SERIES.

In this series we were requested to test four preparations, three of solutions of the active principle (labeled 1 to 1,000) and one of the dried and powdered gland. Two of the preparations, C and A, were from the same manufacturers as in the first series. These preparations were offered at the following prices:

D, 25 c.c.....19 cents
A, 25 c.c.....60 cents
C, 25 c.c.....60 cents
Suprarenal gland (desiccated), 1 ounce.....72 cents

The samples were submitted by the competing firms.

The examination was made as in the first series. Inasmuch, however, as the most satisfactory results were obtained when equal amounts of different dilutions were compared, only these results will be reported here.

Experiment, June 15.—Rabbit, 2,770 gm.; urethane and chloral hydrate; curare; vagi cut.

Time.	Preparation.	Blood-pressure in mm. of mercury.		
		Before.	After.	Rise.
4:13	D, 1 to 50,000.....1 c.c.	65	89	24
4:15	A, 1 to 100,000.....1 c.c.	64	122	58
4:20	D, 1 to 25,000.....1 c.c.	65	100	35
4:23	A, 1 to 100,000.....1 c.c.	58	114	56
4:30	A, 1 to 150,000.....1 c.c.	63	107	44
4:44	A, 1 to 150,000.....1 c.c.	69	111	42
4:46	D, 1 to 20,000.....1 c.c.	74	127	53
4:54	A, 1 to 100,000.....1 c.c.	71	125	54
5:01	D, 1 to 20,000.....1 c.c.	70	119	49
5:07	C, 1 to 100,000.....1 c.c.	77	120	43
5:11	A, 1 to 100,000.....1 c.c.	82	130	48
5:37	D, 1 to 20,000.....1 c.c.	90	120	30
5:41	C, 1 to 100,000.....1 c.c.	90	117	27

An examination of the above table shows that approximately equal rises of blood pressure from A and D were obtained only when the concentration of the latter was about five times as great as that of the former. The figures are not so satisfactory for comparing the strengths of A and C, but they indicate in a general way that these preparations were of nearly equal strengths.

Experiment, June 21.—Rabbit; urethane and chloral hydrate; curare; vagi cut.

Time.	Preparation.	Blood-pressure in mm. of mercury.		
		Before.	After.	Rise
3:25	D, 1 to 10,000.....1 c.c.	62	120	58
3:35	A, 1 to 50,000.....1 c.c.	62	121	59
3:38	D, 1 to 20,000.....1 c.c.	67	112	45
3:49	A, 1 to 100,000.....1 c.c.	56	102	46
3:51	D, 1 to 40,000.....1 c.c.	64	85	21
3:56	A, 1 to 150,000.....1 c.c.	62	96	34

These results show again that equal rises of blood pressure were obtained only when D was about five times as concentrated as A.

Similar results were obtained later in the same experiment; as shown in the following table, the effect on the blood pressure was less, but the two preparations had the same relative activity. These figures also show that C and A were of about the same strength and also give approximate results for the relative strengths of decoctions of the dried glands and the active principle.

Time.	Preparation.	Blood-pressure in mm. of mercury.		
		Before.	After.	Rise.
4:40	Suprarenal gland, 1 to 1,000..1 c.c.	52	97	45
4:46	Suprarenal gland, 1 to 2,000..1 c.c.	49	72	23
4:50	A.....1 to 100,000..1 c.c.	48	70	22
4:53	C.....1 to 100,000..1 c.c.	45	68	23
4:58	D.....1 to 20,000..1 c.c.	43	68	25
5:01	D.....1 to 40,000..1 c.c.	43	54	11
5:04	C.....1 to 100,000..1 c.c.	40	60	20
5:14	Suprarenal gland, 1 to 500..1 c.c.	38	80	42
5:21	A.....1 to 50,000..1 c.c.	47	91	44
5:27	D.....1 to 10,000..1 c.c.	40	83	43
5:30	D.....1 to 20,000..1 c.c.	43	66	23
5:33	A.....1 to 100,000..1 c.c.	42	62	20
5:36	Suprarenal gland, 1 to 250..1 c.c.	27	106	79

For some reason the results of these experiments with decoctions of the dried gland (made by warming on the water bath for one-half hour with normal saline solution) are not very concordant. Thus in the first injections (4:46 and 4:50)

1 c.c. of a decoction of the gland 1 to 2,000 caused a rise of blood pressure equal to that caused by 1 c.c. of A 1 to 100,000; this would indicate that 1 gm. of the dried gland would yield 20 c.c. of a decoction equal to A 1 to 1,000. In the later injections, however (5:14 and 5:21), 1 c.c. of a decoction of the gland 1 to 500 caused a rise of blood pressure equal to that caused by 1 c.c. of A 1 to 50,000; or, according to these results, 1 gm. of the dried gland would yield but 10 c.c. of a solution corresponding to a solution 1 to 1,000 of the active principle.

Special attention was given to the determination of the relative strengths of decoctions from the gland and A in the following:

Experiment, July 6.—Rabbit, 1,750 gm.; urethane and chloral hydrate; curare; vagi cut.

Time.	Preparation.	Blood-pressure in mm. of mercury.		
		Before.	After.	Rise.
4:27	A.....1 to 50,000..1 c.c.	56	90	34
4:35	Suprarenal gland, 1 to 750..1 c.c.	60	95	35
4:47	A.....1 to 50,000..1 c.c.	64	98	34
4:52	Suprarenal gland, 1 to 750..1 c.c.	65	96	31
5:03	A.....1 to 100,000..1 c.c.	45	70	25
5:05	Suprarenal gland, 1 to 1,125..1 c.c.	50	75	25
5:12	Suprarenal gland, 1 to 1,500..1 c.c.	38	57	19
5:15	A.....1 to 100,000..1 c.c.	36	54	18
5:35	A.....1 to 25,000..1 c.c.	45	105	60
5:39	Suprarenal gland, 1 to 750..1 c.c.	50	101	51

The results again are not entirely concordant, but they show that 1 gm. of the dried gland yielded from 11 to 15 c.c. of a solution corresponding to a 1 to 1,000 solution of the active principle (1 gm. of the gland macerated with 750 c.c. normal saline yielded a solution, 1 c.c. of which equaled, physiologically, 1 c.c. of A 1 to 50,000; or 50 c.c. of the gland decoction, 1 to 750, would equal, physiologically, 1 c.c. of a solution of A 1 to 1,000. Hence 750 c.c., the decoction prepared from 1 gm. of the gland, equaled, physiologically, 15 c.c. of A 1 to 1,000).

Three days later the same solutions were again tested; the results were similar, but indicated that the decoction from the gland had undergone greater deterioration than had the solution of the active principle.

Experiment, July 9.—Rabbit, 2,090 gm.; urethane and chloral hydrate; curare; vagi cut.

Time.	Preparation.	Blood-pressure in mm. of mercury.		
		Before.	After.	Rise.
1:43	Suprarenal gland, 1 to 1,875..1 c.c.	42	64	22
1:46	A.....1 to 125,000..1 c.c.	40	68	28
1:53	A.....1 to 100,000..1 c.c.	38	70	32
1:55	Suprarenal gland, 1 to 150,000..1 c.c.	38	64	26
1:57	A.....1 to 100,000..1 c.c.	37	65	28
2:09	A.....1 to 50,000..1 c.c.	40	100	60
2:10	Suprarenal gland, 1 to 750..1 c.c.	42	90	48
2:13	A.....1 to 50,000..1 c.c.	38	98	60
2:20	A.....1 to 75,000..1 c.c.	36	70	34
2:24	Suprarenal gland, 1 to 1,050..1 c.c.	40	76	36
2:26	A.....1 to 75,000..1 c.c.	37	74	37

CONCLUSIONS.

From these experiments we may conclude that the samples of C and A were of about equal strength and approximately five times as strong as the sample of D. Although the price at which the latter was offered was but approximately one-third of that of the former, it was in reality the most expensive of the three. These experiments also show that the physician or pharmacist could prepare from an ounce of dried suprarenal gland about 15 fluid ounces of a decoction equal in strength to that of the active principle 1 to 1,000. As the price of an ounce of the dried gland is but little higher than that of a fluid ounce of the solution 1 to 1,000, the economy of using the former, when practicable, is evident; in practice there are, however, many cases in which a solution of the active principle is much to be preferred.

It is interesting to compare the deductions based on physiologic experiments as to the amount of active principle present in the dried gland with the chemical results. Abel (*American Journal of Pharmacy*, 1903, p. 312) calculated that the fresh beeves' suprarenals contain at least 0.3 per cent. of the active principle. One part of the dried gland corresponds, according to the United States Pharmacopeia, to approximately six parts of the fresh gland; hence, according to Abel's experience, the dried gland should contain about 1.8 per cent., or 1 gm. of the dried gland would contain 0.018 gm. of the active principle. Hence 1 gm. of the dried gland should yield about 18 c.c. of a solution corresponding to 1 to 1,000 of the active principle. As a matter of fact, I found that it yielded about 15 c.c. of such a solution, and it is improbable that the gland was completely exhausted in my experiments.

It would not be fair to infer from these experiments that manufacturers are intentionally mislabeling their preparations; it is much more probable that they do not always make their solutions from pure preparations of the active principle, and that afterward the solutions are not tested physiologically with sufficient care. Only one bottle of D was examined, the one submitted by the manufacturers; this, which was so deficient in strength, was stated to have been tested physiologically. It is possible that the solution in this bottle had deteriorated, although it presented none of the ordinary indications of deterioration (turbidity, change in color, etc.). The experiments do, however, show very plainly that some manufacturers do not put out preparations of uniform strength.

THE COMPARATIVE PHYSIOLOGIC ACTIVITY OF SOME COMMERCIAL SUPRARENAL PREPARATIONS.

PHARMACOLOGIC LABORATORY OF WESTERN RESERVE UNIVERSITY.
CLEVELAND, OHIO, Aug. 2, 1906.

To the Council on Pharmacy and Chemistry of the American Medical Association:—We submit herewith the following report on the examination of a series of suprarenal preparations, undertaken at your request:

SAMPLES.

The experiments were made with two sets of freshly bought samples, one set (*a*) purchased from a jobbing druggist, the second (*b*) from a high-class prescription pharmacy.

The packages bore the following manufacturers' numbers:

	(*a*.)	(*b*.)
Preparation 1.....	C. P. 60183 C. D.	C. P. 60183 C. C.
Preparation 2.....	1085641	1088731
Preparation 3.....	210072	303082
Preparation 4.....	670028	670000

The samples were of acid reaction, except preparation 4, *b*, which was distinctly alkaline and which bore an odor of thymol, absent in sample *a*.

METHODS.

The efficiency was tested by injecting a 1 to 50 dilution (in normal saline) of the 1 to 1,000 solution, usually in doses of 0.5 c.c. per kg. of body weight (equals 0.01 c.c. per kg. of the 1 to 1,000 solution) into the femoral vein of anesthetized dogs, alternating the samples in irregular sequence and taking carotid blood-pressure tracings. The vagi were intact in some, divided in other experiments. In all, seventy-one injections were made on twelve dogs.

The keeping quality was estimated by allowing the above dilutions to stand the specified time and observing the physiologic efficiency and the change of color.

To prevent any possibility of bias, the solutions were made by an assistant and provided with numbers, the identity of the products being unknown to us until the experiments were completed and the conclusions drawn.

RESULTS.

Efficiency of the Fresh Solutions.—Designating the efficiency of the solution of preparation 2, *a*, as 100, that of the other samples of the series is approximately as follows:

	Efficiency of *a*.	Efficiency of *b*
Preparation 1.....	70	70
Preparation 2.....	100	86
Preparation 3.....	86	63
Preparation 4.....	95	nil.

Suprarenalin, *b*, had no effect on blood pressure, even in doses of 0.1 c.c. per kg., i. e. in ten times the standard dose.

Keeping Qualities of the Diluted Solutions.—This may be judged from the following table:

	Efficiency of Fresh Dilution.	After Standing One Day.	After Two Days	Discoloration in One Day.	In Two Days.
Preparation 1, *a*	70	25	0	None	—
Preparation 1, *b*	70	Active	Active	None	None.
Preparation 2, *a*	100	0	—	Dark pink.	—
Preparation 2, *b*	86	0	—	Dark pink.	—
Preparation 3, *a*	86	15	0	None	—
Preparation 3, *b*	63	0	—	None	None.
Preparation 4, *a*	95	0	—	Light pink	—
Preparation 4, *b*	0	—	—	Light pink	—

CONCLUSIONS.

In view of the variability in the commercial samples, as revealed in our examination, definite conclusions concerning the comparative activity of the different makes of suprarenal solutions are not warranted. Theoretically, all samples of "1 to 1,000 solution of suprarenal alkaloid" should be of identical strength, just as are all 1 to 1,000 solutions of strychnin. It is evident that this is not the case in practice, and that the physician, in injecting this powerful substance, is at present unable to use a perfectly exact dosage. Our samples of preparations 1 and 2 exhibited less variation than preparations 3 and 4, but we can not be certain that a larger series of samples might not have shifted the relative position. This is also true of the average efficiency, which decreases in the first series of samples from preparation 1 (100) to preparation 4 (95), to preparation 3 (86), to preparation 1 (70); in the second series, from preparation 2 (86), to preparation 1 (70), to preparation 3 (63), to preparation 4 (0). We repeat that we would not lay any emphasis on the comparative efficiency of the different makes on account of the variability.

The results as to the stability of the solutions are more constant. Preparation 1 is the most stable, then comes preparation 3, then preparation 4, then preparation 2. This subject of stability, however, has probably little practical importance, since the dilutions of all the samples are practically worthless after twenty-four hours.

We are unable to state whether the samples vary in strength when they leave the makers' hands, or whether the differences are due to subsequent deterioration. The former would be quite inexcusable. The latter would seem to demand a dating and returning system similar to that in vogue for antitoxic sera.

Respectfully submitted,

TORALD SOLLMAN,
EDGAR D. BROWN.

Correspondence

Cocain in Tucker Asthma Cure.

SHILOH, O., Aug. 28, 1906.

To the Editor:—Referring to the article of Dr. Vickery on "Cocain in Tucker Asthma Cure" in THE JOURNAL A. M. A., Aug. 4, 1906, I wish to thank the author for his report and to commend his suggestion as to what ought to be done to suppress such a "cure." I had a case here, with all the symptoms of acute cocain poisoning, as the result of using the above preparation. The patient was a child 5 years of age, and I can assure you that a "remedy" that will produce as marked symptoms of poisoning in as short a time as does the Tucker Asthma Cure, needs to be removed from the market, or at least labeled as to its contents, and not retailed to an unsuspecting public as a harmless asthma cure.

N. P. MCGAY.

The Teaching of Medical Jurisprudence in New York.

JERSEY CITY, Aug. 28, 1906.

To the Editor:—In THE JOURNAL, Aug. 25, 1906, page 586, you make the editorial statement that "The New York schools, Columbia, Bellevue and Cornell, make no mention of the subject whatever. Medical jurisprudence is not among the courses required by the New York Board of Regents." I call attention to the fact that Hon. Millard Bartlett of the appellate division of the Supreme Court delivers fifteen lectures each year at the Long Island College Hospital to the third year class.

WALTER T. DANNREUTHER, M.D.

Hay Fever and Ivy Poisoning.

CINCINNATI, Aug. 28, 1906.

To the Editor:—A year ago, while suffering from hay fever, I was poisoned with ivy. Though in the midst of the season the hay fever disappeared immediately on the advent of the ivy poisoning and gave me no further trouble that year. Was this a coincidence or a consequence? If the latter, why? Have any more of your numerous readers made the same observation?

Pollantin in hay fever has given me no relief.

E. S. MCKEE.

Records of Graduates of Flint Medical College.

NEW ORLEANS, Aug. 27, 1906.

To the Editor:—At the May meeting of the Louisiana State Board seven of the eight 1906 graduates of Flint Medical College presented themselves for examination, and only one failed to pass. This gives a 14 2/7 per cent. of failures and should place us in Table J of your statistics instead of Table K. In justice to our school and its present administration, may I ask you to publish this statement?

A. D. BUSH, Dean.

[EDITOR'S NOTE.—Tables J and K, to which Dr. Bush refers, appear in the annual Educational Number of THE JOURNAL, August 25, and are a part of the detailed summaries of the results of the state board examinations in all states for the year 1905. This May examination, at which he says a better record was made, is, of course, a portion of the record for 1906, and this will be included in a summary of the year 1906 to appear early in 1907.]

Population of Los Angeles.

LOS ANGELES, CAL., Aug. 27, 1906.

To the Editor:—On page 613 of the Educational Number (August 25) of THE JOURNAL, under the California heading, the city of Los Angeles is given a population of 116,420.

Since clinical facilities are dependent somewhat on the amount of population, a correction is in order if a proper impression is to be given. The population of Los Angeles at the present time is over 240,000 instead of 116,420. I refer you to the enclosed article from to-day's Los Angeles *Times* showing the most recent figures. The school census last spring showed a population of 230,000. Further, the city water department has 50,977 service pipes in use and five persons to a service pipe is a conservative average. The monthly health reports are based on a population of 200,000, in order to allow a safe margin, but this estimate will shortly be increased.

Los Angeles then is not in the 100,000 but rather in the 250,000 class, and has clinical facilities commensurate with a city of that size.

GEORGE H. KRESS.

[EDITOR'S NOTE:—We are very glad to have this information. As stated in the Educational Number, the figures used were the estimates of the government's Census Bureau for 1903.]

Treatment of Hay Fever by Securing Normal Nostrils.

HARTFORD, CONN., Aug. 20, 1906.

To the Editor:—In THE JOURNAL, August 18, Dr. Dunbar Roy writes that at the session of the Association held at Atlantic City in 1904 I claimed to cure hay fever "by simply forcing patients to become absolute nose breathers." Dr. Roy is in error. I did and do claim to cure hay fever by giving my patients nostrils as nearly normal as possible, and then insisting that they breathe through the nose as Nature intended they should. The perusal of my monograph, "Mouth Breathing," should make clear to the reader what I consider necessary in a general way, not only for the relief but cure of the

hay-fever patient, also what I consider harmful to that patient. I have yet to find a hay-fever patient at any period with normal nostrils, although I often find them with nothing more abnormal than a few irritable areas. I have yet to hear of a single patient whom I have discharged—and they are many—who has had a recurrence.

In my opinion a nostril is not normal if it is capable of establishing a contact area, especially below its median line; further, a nostril is not normal which contains a single irritable area. If I can find a contact area in the nostril of a hay-fever patient, at any other period than his hay-fever period, for the purpose of diagnosis, or if that patient reports to me when he has a "cold in his head," that I may observe where his areas of contact are, I obliterate them when quiescent, either surgically or through cauterization. If I examine the patient during his periodic attack for the first time I advise immediate operation when necessary. I remove what I consider necessary at any point in any nostril, and this without the slightest fear of establishing atrophic areas, since I know my patient is going to become a normal breather. I fully appreciate that indiscriminate cutting would prove disastrous, but if we use a little common sense, backed by experience and some originality, and depend less on the general run of text-books whose authors copy one from another treatment that a school boy with a rudimentary knowledge of physiology should deem absurd, oft-times treatment handed down for generations, we will prove ourselves worthy of the respect of the general public.

We will accomplish much if, instead of waiting for immunizing serums to do the work for us which we are too lazy to do ourselves, we awaken to the fact that Nature stands willing to furnish us a power to resist not only hay fever, but all other affections of the breathing tract when once the upper breathing tract is as nearly normal as possible.

Dr. Roy further states: "After a thorough trial of this method, with the hearty coöperation of my patients, I have not been able to secure the results claimed by Dr. Fitzgerald." My advice to Dr. Roy, whom I believe to be a conscientious and painstaking rhinologist, is to become more familiar with my method, and then to give it a thorough trial to prove to his own satisfaction that we have found "the light which will lead us out of the darkness and gloom" for which he writes he is waiting.

W. H. FITZGERALD.

Treatment of Hay Fever by Dunbar's Remedies (Pollantin).

LA JUNTA, COLO., Aug. 22, 1906.

To the Editor:—I have read with interest the reports made through THE JOURNAL on the use of pollantin in hay fever. My experience has been very limited; I have never used it until within the last two months. Four cases treated resulted as follows:

1. A very aggravated case, in an aged person, who every year suffers intensely. The relief from the eye symptoms was immediate. For the nasal symptoms, which were but slightly relieved, a weak solution of adrenalin was ordered (this previously had given to this patient relief for a few moments only) to be followed by the pollantin. Relief was very marked and three weeks later patient reported herself as being more comfortable than she had ever dared hope to be.

2. First attack, in a person who has resided here several years. Eye symptoms predominated. Relief was very rapid. This may not have been a true case of hay fever.

3. This man suffers severely every season with well-marked symptoms. He thought that he got a little relief.

4. Patient two years from the East, who never had an attack while here. Hay fever came in the first year of his residence here. No relief.

In these cases no attempt was made to treat any abnormal systemic conditions, nor were the proprietor's directions as to sleeping with closed windows, etc., followed. The preparation used was the powder, and the fall variety. The originators are fairly conservative in their claims as set forth in the literature, but the way in which the preparation is marketed will soon put it out of the hands of physicians and into the hands of the laity.

E. GARD EDWARDS, M.D.

Book Notices

ECZEMA. A Consideration of Its Course, Diagnosis and Treatment Embracing Many Points of Practical Importance, and Containing 146 Prescriptions, Illustrating Dosage in Local Applications. By Samuel H. Brown, M.D., Assistant Dermatologist, Philadelphia Hospital, etc. Cloth. Pp. 105. Price, $1.00. Philadelphia: P. Blakiston's Son & Co., 1906.

In the first 28 pages the author considers briefly the varieties, etiology, pathology, symptoms and diagnosis of this disease. The other 71 pages are devoted to treatment. Instead of generalizing, the author gives prescriptions for both local and general treatment.

MILITARY HYGIENE. By Robert Caldwell, F.R.C.S., D.P.H., Lieutenant-Colonel Royal Army Medical Corps; formerly Medical Officer in Charge District Laboratory, Meerut; Member of Committee on Field Sanitation in Connection with Surgeon-General's Report on South African Campaign; Medical Officer in Charge, District Laboratory and Isolation Hospital, First Army Corps. New York: William Wood & Co. 1905.

The object of the book, as the author states, is to give "a short account of those principles of sanitation which most nearly affect the soldier in his every-day life." Of course, it does not go so deeply into details as the encyclopedic work of Munson, but it is in the main accurate, and the advice given will prove valuable both to the junior and senior officers. The author seems to be a little too conservative in certain matters, such as that of the use of kerosene in marshes, the employment of mosquito nettings, the practicability of sterilization of water by boiling, etc.

THE OPHTHALMOSCOPE AND HOW TO USE IT. With Colored Illustrations. Descriptions and Treatment of the Principal Diseases of the Fundus. By J. Thorington, A.M., M.D. 13 Illustrations and 12 Colored Plates. Cloth. Pp. 298. Price, $2.50. Philadelphia: P. Blakiston's Son & Co., 1906.

This may be described as a condensed text-book. While avoiding long mathematical calculations, it leaves little to desire in the matter of clearness of text or illustration. The ten chapters treat of the ophthalmoscope, optics, anatomy and anomalies of the eye, the normal eye ground, structural changes in disease, the vision, retinal vessels, diseases of the retina, of the optic nerve, and of the choroid. Besides numerous figures in the text, it contains twelve excellent colored plates of the fundus in health and in a variety of diseases of the retina and other structures.

A TEXT-BOOK OF HUMAN PHYSIOLOGY, Including a Section on Physiologic Apparatus. By A. P. Brubaker, A.M., M.D. Second Edition. Revised and Enlarged, with Colored Plates and 356 Illustrations. Cloth. Pp. 715. Price, $4.00. Philadelphia: P. Blakiston's Sons & Co., 1905.

The second edition of this work is improved by thorough revision of the sections on the chemistry of the proteids, the chemistry of digestion, the movements of the intestines, the production of lymph, the nerve mechanism of the heart, and the physiology of vision. In the section on the movements of the intestines the author refers to the investigations by Cannon by means of the Roentgen rays and the fluoroscope. Of the production of lymph from the blood and its diffusion he admits that the last word has not been said. The present edition reflects fairly the present state of knowledge and commends itself to all who are interested in the subject, whether as teachers, students or practitioners.

Deaths

Charles G. Bacon, M.D. Albany (N. Y.) Medical College, 1874, who attended a course of lectures in that institution in 1840-1841 and in March, 1841, was licensed to practice in the state of New York by the New York State Medical Society; for 45 years a practitioner of Fulton, N. Y.; a member of the Oswego County Medical Society and a delegate in 1854 to the American Medical Association; for 15 years a censor of the New York State Medical Society; in 1843 hospital brigade surgeon for the Forty-eighth brigade of the Militia of the State of New York, with the rank of major; given an honorary medical degree by the regents of the State of New York in 1858; in 1887 president of the New York Central Medical Society, died at his home in Fulton, August 18, aged 92.

William **Edwin Taylor, M.D.** Medical College of the Valley of Virginia, Winchester, 1859; medical inspector United States Navy, retired; who was appointed to the Navy in 1859 and served 10 years and 5 months on sea duty and 12 years and 3 months on shore and other duty, until his retirement on account of ill health in 1881; for 18 years professor of surgery in the Medical Department of the University of California, and during that time president of the Medical Association of the City and County of San Francisco; since 1898 a resident of Honolulu, H. I., where he served as president of the local medical society and as a member of the Board of Medical Examiners and of the Board of Dental Examiners of the territory, died at his home in Honolulu, July 30, aged 68.

James **W. Breedlove, M.D.** Tulane University of Louisiana, Medical Department, New Orleans, 1849, of Fort Smith, Ark.; for 12 years surgeon in the United States Marine-Hospital Service at New Orleans; surgeon of the Third Louisiana Infantry and later medical inspector in the Confederate service during the Civil War; a charter member of the Sebastion County (Ark.) Medical Society and at one time its president, died at Belle Point Hospital, Fort Smith, August 16, from paralysis, after an illness of four months, aged 79.

George **F. Brendle, M.D.** Department of Medicine of the University of Pennsylvania, Philadelphia, 1862; a member of the American Medical Association and a veteran physician of Mahanoy City, Pa.; for many years a member and officer of the Schuylkill County Medical Society; a charter member of the borough of Mahanoy City and councilman and chairman of the sanitary committee of that borough, died at his home, August 23, from heart disease, after a prolonged illness, aged 69.

Robert **L. McCurdy, M.D.** Cleveland Medical College, Medical Department of Western Reserve College, 1853; said to have been the oldest practitioner of Freeport, Pa.; at various times burgess, councilman and school member of the Freeport board of health; a member of the Medical Society of the State of Pennsylvania, Armstrong County Medical Society and Allegheny Valley Medical Society, died at his home in Freeport, August 26, after a brief illness, aged 81.

William **Rockwell Cheever, M.D.** College of Physicians and Surgeons of Chicago, 1896; a member of the American Medical Association and Wisconsin State Medical Society; president of the Kenosha Medical Society and treasurer of the Kenosha County Medical Association; one of the most brilliant young physicians of Kenosha, was found dead in his room in that city from accidental asphyxiation by gas, August 30, aged 38.

Richard **Coleman Carlisle, M.D.** New York University, New York City, 1862; assistant surgeon in the Confederate service and assigned to duty at Chimborazo Hospital, Richmond, and later surgeon of the Seventh South Carolina Infantry; a prominent citizen of Newberry County, S. C., died at his home nine miles north of Newberry, August 21, from acute gastritis, after an illness of one week, aged 70.

William **H. McCullough, M.D.** Cincinnati College of Medicine and Surgery, 1878; of Tarentum, Pa.; formerly burgess of Tarentum and member of the legislature from the Seventh district; superintendent of the Sandusky County Home, Woodville, Ohio, in 1900, died at the home of his sister, in Petrolia, Pa., August 25, after a prolonged illness, from injuries received in a railroad accident, aged 55.

John **N. Bassett, M.D.** New York University, New York City, 1882; a member of the American Medical Association; once president of Canton, N. Y., and for 12 years a member of the school board; one of the most esteemed practitioners of St. Lawrence County, died at his home in Canton, N. Y., August 16, after an illness of two days from cerebral hemorrhage, aged 56.

Jerome **B. Greene** (Examination, Pennsylvania, 1861); surgeon in the Army throughout the Civil War; for many years a practitioner of Providence, R. I., died suddenly, July 27, from cerebral hemorrhage, while making an address at a reunion of the Rhode Island Fifth Heavy Artillery, aged 75.

John Harris **Westerfield,** M.D. University of Louisville, Medical Department, 1871, a member of the Polk County (Ark.) Medical Society and of the American Medical Association, died at his home in Atkins, Ark., July 31, from gallstone disease, after an illness of four weeks.

Nathaniel **Cass, M.D.** Tulane University of Louisiana, Medical Department, New Orleans, 1882, several times an alderman of Cameron, Texas, died at his home in that city, August 20, from pneumonia, following an attack of appendicitis, for which operation was performed 25 days before.

Walter **Ross Langdon, M.D.** Jefferson Medical College, Philadelphia, 1852; of Stockton, Cal.; surgeon in the Confederate Army throughout the Civil War; physician at the Stockton State Hospital from 1871 to 1888, died from heart disease, at Santa Cruz, Cal., August 5, aged 75.

Donald A. Link, M.D. Detroit (Mich.) College of Medicine, 1895, of Volinia, Mich., a member of the Michigan State Medical Society and Cass County Medical Society, was accidentally drowned while shooting the rapids of the Moon River, near Ravenhurst, Ont., August 15, aged 40.

Sam Houston Hynds, M.D. Jefferson Medical College, Philadelphia, 1860; a Confederate veteran; for many years a practitioner of Arkansas and Tennessee, died at Parvin, Texas, July 3, from gastritis and hepatitis, after an illness of two months, aged 69.

Christopher Anton Jaeger, M.D. Western College of Homeopathic Medicine, Cleveland, 1864; a veteran of the Civil War; said to be the oldest practitioner of Elgin, Ill., died at the Sherman Hospital, Elgin, August 24, after an illness of one year, aged 79.

George W. Taylor (Years of Practice, Indiana), a surgeon in the Confederate service during the Civil War and for many years a practitioner of Crawfordsville, Ind., died at his home in that city, June 29, from paralysis, after an illness of 11 years, aged 85.

John Gregg (Years of Practice, W. Va.), a veteran of the Civil War and one of the oldest practitioners of Harrison County, W. Va., died in St. Mary's Hospital, Clarksburg, August 18, from nephritis, after an illness of several weeks, aged 68.

Jesse W. Jansen, M.D. New York University, New York City, 1886, supervisor from the Sixth Ward of Binghamton, N. Y., in 1892, died at his home in that city, August 27, from nervous prostration, after an illness of three weeks, aged 45.

Walter Tate Cody, M.D. Rush Medical College, Chicago, 1886, of Detroit, was taken ill at Cobalt, Ont., removed to Toronto General Hospital and died in that institution, August 28, a few hours after an operation for brain tumor, aged 48.

Edward D. Perkins, M.D. University of Georgetown, Medical Department, Washington, D. C., 1895, of Washington, D. C., died at Providence Hospital, in that city, August 24, from peritonitis, after an illness of five days, aged 41.

John C. Holmes, M.D. College of Physicians and Surgeons in the City of New York, 1864, a retired practitioner of Cranbury, N. J., was instantly killed by being struck by a train near Jamesburg, N. J., August 21, aged 65.

Walter C. Lohr, M.D. Milwaukee Medical College, 1905, of Denmark, Wis., died at the home of his parents, near West Bend, Wis., August 25, from sarcoma of the breast, after an illness of several months, aged 27.

J. T. H. Scott, M.D. New York Medical College, New York City, 1861; a Confederate veteran; for 40 years a practitioner of Barren Plains, Tenn., died at his home in that place, August 18, from tuberculosis.

Gilbert A. Ewing, M.D. Medical College of Ohio, Cincinnati, 1866, who served as hospital steward during the Civil War, died at his home in Jackson, Ohio, from senile debility, August 19, aged 72.

T. R. Seastrunk, M.D. Medical College of the State of South Carolina, Charleston, 1844, died at his home in Burkeville, Texas, August 20, aged 84.

Joseph E. Couper, M.D. Hahnemann Medical College, Philadelphia, 1881, died at his home in Blue Earth, Minn., August 20, from cerebral hemorrhage, after a brief illness, aged 49.

Edgar F. Bonham, M.D. New York University, New York City, 1883, died suddenly at his home in Fairmount Springs, Pa., August 24, while prescribing for a patient, aged 50.

David H. Bradley, of Mayview, Mo., a member of the Lafayette County Medical Society, died at his home, July 12, from heart disease, after an illness of two years, aged 66.

Jefferson C. Farr, M.D. St. Joseph Hospital Medical College, St. Joseph, Mo., 1878, died at his home in Alanthus, Mo., August 21, after a long illness.

H. Clint Bacon, M.D. Jefferson Medical College, Philadelphia, 1868, died at his home in Harveyville, Pa., August 15, from kidney disease, aged 64.

George W. Burns, M.D. Detroit Medical College, 1868, died at his home in Morrison, Ill., July 3, from nephritis, after an illness of six months, aged 64.

William Anson Bliss, M.D. Albany (N. Y.) Medical College, 1866, died at his home in Brooklyn, N. Y., August 19, after a lingering illness, aged 65.

Emanuel M. Donelson, M.D. Cincinnati College of Medicine and Surgery, 1877, was shot and killed at Cedarvale, Kan., August 28, aged 60.

Joseph P. Gordon (License Ohio, 1846), died at his home in Eldorado, Kan., May 31, from senile debility, aged 86.

Deaths Abroad.

A. Bogdanow, M.D., professor of pathology at Odessa and frequent contributor to medical periodicals, died at Odessa in August, aged 52.

S. Tomaselli, M.D., professor of clinical medicine at Catania, and one of the leaders in medical education in Italy, died at Catania August 9, aged nearly 80, of chronic gastritis. His name is specially connected with malaria.

Marriages

EMILIE R. MARIS, M.D., to William H. Cole, both of Duluth, Minn., August 22.

FRANK A. HILL, M.D., to Miss Fidele A. Madison, both of Chicago, August 15.

W. H. TAYLOR, M.D., Irwin, Pa., to Miss Ada Menges of Pittsburg, August 22.

HENRY KENDALL, M.D., to Miss Anna Zanderer, both of New York City, August 26.

ISAAC B. HARVIS, M.D., Columbus, Ohio, to Miss Anne Eliza Oliver, at McHenry, N. D.

C. W. O'BRIEN, M.D., Wyandotte, Mich., to Miss Florence I. Ellis of Maitland, N. S., August 23.

PAUL LANDRY, M.D., White Castle, La., to Miss Leona Barker of New Orleans, August 22.

GEORGE BLUMER, M.D., New Haven, Conn., to Miss Anne Evans of San Diego, Cal., August 20.

ALFRED WILLIAM GRAY, M.D., Milwaukee, to Miss Ada Pratt Ferry of Chicago, September 5.

RICHARD H. STREET, M.D., Chicago, to Miss Lillian Woodward Gunckle of New York City, August 27.

MARTIN DONOHUE DELANEY, M.D., Alexandria, Va., to Miss Catharine Frances O'Donoghue of Georgetown, D. C., June 4.

WALTER SYDNEY JOHNSON, M.D., Los Angeles, Cal., to JULIA ROSS YOUNGLOVE, M.D., of Boston, Mass., at Riverside, Cal., August 15.

Association News

NEW MEMBERS.

List of New Members of the American Medical Association for August, 1906.

ALABAMA.

Caffey, H. T., Leeds.
Maples, J. H., Elkmont.
Nix, G. C., Sanford.
Wood, Isaac D., Talladega Spgs.

ARIZONA.

Pearson C. E., McCabe.

ARKANSAS.

Briant, W. A., Hope.
Parnall, H. H., Columbus.
Parks, W. P., Mena.

CALIFORNIA.

Frederick, M. W., San Francisco.
Liverman, J. R., San Bernardino.
Scroggs, G. A., Los Angeles,
Stoney, R. C., San Francisco.
Wood, E. G., Oakland.

COLORADO.

Blair, M. M., Dolores.

CONNECTICUT.

Pratt, A. M., Deep River.
Sheehan, W. J., New Haven.
Sperry, F. N., New Haven.
Tuttle, A. L., Milford.

DELAWARE.

Campbell, G. Frank, Shelbyville.

DISTRICT OF COLUMBIA.

Koones, C. K., Washington.

FLORIDA.

Alsobrook, J. W., Plant City.
Mack, Clyde C., Quincy.

GEORGIA.

Anderson, John M., Barnesville.
Benson, M. T., Atlanta.
Garney, C. H., Rossville.
Lamar, R. V., Milledgeville.
Lindsey, R. C., Moultrie.
Ware, F. N., Thomson.
Walker, N. P., Milledgeville.

HAWAII.

McGettigan, R. J., Waipahu, Oahu.

IDAHO.

O'Connor, Burdett, Mackay.

ILLINOIS.

Baker, R. L., Peoria.
Blatt, M. L., Chicago.
Dart, Ralph, Rock Island.
Ellis, I. W., Murphysboro.
Evans, C. A., Bluffs.
Griffin, M. A., Chicago.
Hobson, E. B., Gillespie.
Hoover, W. K., Lovington.
Kilbourn, E. D., Ancona.
Koch, J. A., Quincy.
Lence, J. J., Jonesboro.
McGinnis, Edwin, Orland.
McKee, H. T., Sparta.
Morgan, J. W., Moline.
Pantler, N. B., Waterloo.
Post, W. E., Chicago.
Roe, M. C., Chana.
Rose, W. J., Columbia.
Schmidt, H. G. G., Elgin.
Schraver, W. S., Chicago.
Smith, C. G., Red Bud.
Stewart, W. B., Joliet.
Taylor, L. S., Elgin.
Wharton, J. E., Jacksonville.
Xelowski, T. Z., Chicago.

INDIANA.

Barnett, C. E., Ft. Wayne.
Brandon, W. S., Daleville.
Clark, S. A., South Bend.
Galloway, U. G., South Bend.
Mix, C. M., Muncie.
Payne, F. M., Princeton.
Rice, S. M., Terre Haute.
Whitmer, B. F., Goshen.
Wilson, W., Newburgh.

IOWA.

Gaumer, J. S., Fairfield.
Jennings, H. B., Council Bluffs.
Lowder, Rosa E., New Providence.
Mabee, C. O., New Providence.
Maxwell, A. B., Ames.
Mulky, Carl, Knoxville.
Nims, E. A., Boone.
Ohlmacher, J. C., Independence.
Schaefer, P. H., Burlington.
Shiley, G. F., Missouri Valley.
Stewart, A. P., Rembrandt.
Wilson, M. E., Estherville.

KANSAS.

Colt, J. D., Manhattan.
Fillmore, R. S., Blue Rapids.
Garlinghouse, O. L., Iola.
Hershner, C. S., North Branch.
Hittner, H. M., Esbon.

KENTUCKY.

Rolin, J. A., Somerset.
Freeman, J. K., Louisville.
Lamar, F. C., Louisville.
Mason, W., Jr., Murray.
Menefee, A. V., Williamstown.
Owens, J. M., Somerset.
Renaker, J. G., Dry Ridge.
Townsend, G. E., Bowling Green.
Ward, J. H., Louisville.

LOUISIANA.

Hammons, W. W., Marthaville.
Morris, H. G., Kentwood.

MAINE.

Davis, P. W., Portland.

MARYLAND.

Goodell, C. F., Frederick.
Remsberg, D. E., Frederick.
Steele, Guy, Cambridge.

MASSACHUSETTS.

Burton, S. C., Pittsfield.
Daly, J. J., No. Andover.
Fahvan, Marshal, Brookline.
Mackie, W. C., Brookline.
O'Connor, J. H., Hyde Park.
Poirer, Horace, Salem.
Sayward, W. H., Jr., Wayland.
Shanahan, John, Peabody.
Soutter, Robert, Boston.
St. Denis, J. N., Medford.

MICHIGAN.

Blair, C. A., Morenci.
Felch, E. P., Alma.
Ferguson, J. E., Belding.
Kirkpatrick, Clifford, Adrian.
Morris, H. R., Sebewaing.
Smith, F. D., Coopersville.
Thomas, G. H., Holland.
Walling, J. S., Coopersville.

MINNESOTA.

Austin, W. J., Minneapolis.
Hoode, Anders G., Biwabik.
Johnson, A E., Minneapolis.
Maurer, E. L., Brownton.
Patterson, F. D., Lambert.
Schottler, G. J., Dexter.
Titus, W. S., Mora.
Webster, H. E., Duluth.

MISSISSIPPI.

Lehmberg, C. E., Artesia.

MISSOURI.

Amman, E. W., Holstein.
Brown, C. W., Campbell.
Byrne, J. I., St. Joseph.
Carter, Howard, Webster Grove.
Davis, G. W., Kansas City.
Irwin, C. B., Kansas City.
Graham, T. E., St. Louis.
Kuhn, W. F., Farmington.
Langley, J. W., Granby.
Lucas, H. R., Chaffee.
Parker, F. P., St. Louis.

MONTANA.

Ritchey, J. P., Townsend.
Seaman, W. L., Billings.

NEBRASKA.

Heilman, W. L., Sterling.
Mack, A. E., Omaha.
Taylor, F. L., Hastings.

NEVADA.

Franck, H. E., Reno.

NEW HAMPSHIRE.

Childs, A. H., Dublin.
Guertin, Auguste, Nashua.
Weaver, G. A., Warren.

NEW JERSEY.

Bradford, S. S., Montclair.
Gilbert, J. S., Bordentown.
Smalley, M. C., Gladstone.
Von Deester, H. T., Hoboken.
White, F. H., Hackensack.

NEW YORK.

Applegate, W. S., Brooklyn.
Atwater, D. H., Rochester.
Ayer, J. C., New York.
Barnard, T. P. C., No. Tonawanda.
Bauer, E. E., Oswego.
Beattie, W. H., Utica.
Bodkin, M. L., Brooklyn.
Brown, W. M., Rochester.
Callan, L. W., New York.
Camac, C. N. B., New York.
Carman, Albro R., New York.
Case, H. G., Syracuse.
Cheesman, W. S., Auburn.
Clark, G. E., Skaneateles.
Clemesha, J. C., Buffalo.
Close, G. H., New York.
Coggeshall, Henry, New York.
Cusack, E. J., Fulton.
De Kraft, F., New York.
Dold, W. E., New York.
Dorr, L. B., Buffalo.
Dwyer, J. T., Oswego.
Edlich, T. J., New York.
Erway, D. D., East Syracuse.
Fisk, A. L., New York.
Goldmark, Carl, New York.
Gorton, J. T., Yonkers.
Gray, E. H., Rochester.
Gutmarn, Hugo, Schenectady.
Hayes, W. E., Frankfort.
Himowich, A. A., New York.
Hoag, W. B., New York.
Howk, L. W., Rochester.
Johnson, A. W., Mechanicsville.
Johnson, I. T., Rochester.
Judd, Asninwall, New York.
Kanle, E. B., Elbridge.
Keens, W. G., Albany.
Kilmer, E. D., Rushford.
Kurth, H. A., Schenectady.
Lawrence, A. W., Brooklyn.
Lewis, C. H., New York.
Macleod, J. A., Buffalo.
McChesney, W. E., Niagara Falls.
McFarland, W. C., New York.
McKenzie, D. C., Granville.
Miller, J. L., Corning.
Muller, H. W., New York.
Mulligan, W. T., Rochester.
Neff, L. K., New York.
Nichols, C. W., Whitesboro.
Osgood, A. T., New York.
Overton, W. T., Binghamton.
Peterman, C. P., Brooklyn.
Pohl, G. A., Buffalo.
Pyburn, P. F., Brooklyn Bridge.
Quinn, W. V., Utica.
Richter, Julius, Buffalo.
Schultze, E. C., New York.
Scott, J. M. W., Schenectady.
Straub, G. F., New York.
Steese, F. S., New York.
Tarbox, H. R., Brooklyn.
Virden, J. E., New York.
Williams, W. W., Hilton.
Wolbarst, A. L., New York.
Wright, G. R., Deansboro.

NORTH CAROLINA.

Black, J. C., Pioneer Mills.
Faucette, T. S., Burlington.
Manning, J. M., Durham.
Williams, J. R., Greensboro.

NORTH DAKOTA.

Lee, M. A., Edmore.
Warren, J. G., St. John.

OHIO.

Arundel, T. J., Youngstown.
Carson, J. W., Bergholz.

Clark, Wm., Cleveland.
Courtright, T. E., Columbus.
Crisler, C. G., Cincinnati.
Cushing, C. H., Elyria.
Daner, A. J., Hasklns.
Dawson, N. B., Sterling.
Englander, Simon, Cleveland.
Garmler, G. F., Massillon.
George, Edward, Van Buren.
George, O. E., Cleveland.
Harris, J. H., Clifton.
Heath, H. H., Toledo.
Hopkins, D. A., Middlefield.
Hoskins, F. C., Cleveland.
Huffman, O. V., Dayton.
Kehoe, E. J., Cincinnati.
King, C. P., Newark.
Lichliter, D. C., Dayton.
McAllister, A. L., Beaver.
Moore, E. D., New Philadelphia.
Mumaw, W. S., Kansas.
Patterson, C. U., Uhricsville.
Patrick, H. W., Elyria.
Piper, J. W., Bethesda.
Pool, Henry J., Pt. Clinton.
Ricksecker, O. C., Wilmot.
Salisbury, C. W., Dayton.
Scott, Ernest, Clintonville.
Sears, O. T., Toledo.
Sellenings, O. H., Columbus.
Siegrist, C. H., Uhrichsville.
Smith, W. A., Springfield.
Tibbitts, F. E., Geneva.
Webb, A. G., Cincinnati.
Williams, W. E., Jackson.
Wolf, E. A., Dennison.
Wood, W. H., Smithfield.
Yeomans, W. L., Bucyrus.

OKLAHOMA.

Dunaway, J. E., Noble.
Glenn, J. O., Stroud.
Scott, S. F., Waukomis.
Shive, J. R., Shawnee.
Stalker, H. A., Pond Creek.

PENNSYLVANIA.

Anderson, G. C., Pittsburg.
Berk, J. K., Frackville.
Bryson, J. F., Girardville.
Buck, A. J., Mill City.
Carson, F. W., Waymart.
Ely, G. W., Pittsburg.
Enos, J. C., Charlerol.
Farquhar, R. C., Monongahela.
Gray, E. P., Wilkinsburg.
Hartzell, C. A., Fayetteville.
Jones, Mary L., Pittsburg.
Lacock, H. M., West Finley.
Macrum, R. S., Sewickley.
McComb, S. F., Tarentum.
McKay, Edward, Charlerol.
Robinson, G. C., Philadelphia.
Santee, G. O. O., Schuylkill Haven.
Sandels, C. C., Pittsburg.
Sargent, L. D., Beallsville.
Shidler, W. J., Canonsburg.
Steese, John, Philadelphia.
Waggoner, LeR. C., Brownsville.

PHILIPPINE ISLANDS.

Yeagle, C. E., Manila.

SOUTH CAROLINA.

Brawley, J. C., Greenwood.
Madden, A. A., Columbia.
Millard, J. P., St. George.
Russell, H. E., Easley.
Southard, W. O., Jonesville.

SOUTH DAKOTA.

Calkins, R. W., Custer.
Coburn, G. H., Deadwood.

TENNESSEE.

Beasley, E. M., Coal Creek.
Bowers, T. L., Rockwood.
Caldwell, Robert, Nashville.
Dye, J. S., Chattanooga.
Ellis, S. C., Chattanooga.
Sumpter, W. D., Nashville.
Walker, J. L., Wartrace.
Ziegler, T. J., Chattanooga.

TEXAS.

Farmer, T. J., Dublin.
Gray, A. N., Floyd.
Hirschfeld, Louis, Marion.
Largent, T. W., Lufkin.
Mahon, G. D., Marshall.
Reger, Howard, Ft. Worth.
Shields, F. B., Victoria.

VIRGINIA.

Gill, W. W., Petersburg.
Hains, F. W., Petersburg.
Lewis, C. T., Staunton.
McNair, R. T., Emporia.
Murrell, T. W., Richmond.
Rosser, R. A., Portsmouth.
Terrell, E. H., Richmond.
Tompkins, J. E., Fredericksburg.

WASHINGTON.

Cook, Lucie A., Seguin.
Moore, R. P., Davenport.
Williams, Angus S., Ellensburg.

WEST VIRGINIA.

Bates, C. S., Lumberport.
Coburn, L. W., Morgantown.
Denham, Cecil, Weston.
Fisher, R. W., Morgantown.
Flowers, A. O., Clarksburg.
Leahy, W. J., Mannington.
Naret, E. L., Morgantown.
Peck, D. C., Grafton.
Robinson, B. O., Parkersburg.
Siddarth, F. S., Grafton.
Wehner, E. F., Clarksburg.

WISCONSIN.

Gephart, C. H., Kenosha.
Hardy, C. F., Milwaukee.
Leeb, H. J., Milwaukee.
Horstmann, F. M., Rice Lake.
Karsten, A. C., Horicon.
Potter, J. Y., New London.
Schallert, P. O., Wrightstown.
Scheib, G. F., Fond du Lac.

Queries and Minor Notes

TREATMENT OF CONGENITAL ABSENCE OF ANUS.

———, ILLINOIS, Aug. 21, 1906.

To the Editor:—On August 7, Mrs. B., a perfectly healthy woman, 28 years of age, after a normal pregnancy, gave birth to a fine eight-pound boy, well nourished and healthy looking, and perfect in every way except that there was no anus or any sign of any, and a small amount of meconium was being passed through the urethra of the penis. The next morning a local surgeon was called in consul and an incision was made through the floor of the pelvis and dissected up along the coccyx, but no rectum was found or trace of a gut until the sigmoid flexure was reached in the free peritoneal cavity, about an inch from the perineum. A large opening was made in this which was followed by a discharge of feces. No attempt was made to stitch the gut to the wall or to the integument. The opening was not closed in any way, and no dressing applied except that the nurse was directed to keep the site of operation sponged with a saturated solution of boracic acid after each evacuation of the bowels. The child nursed well after the operation and has continued to do so. It sleeps nearly all of the time, but had had no elevation of temperature; the passages come free, and the urine is passed normally. Can you suggest any means of treatment that will permit the child to grow up with at least a slight control of the bowel movements, or refer me to a text-book that treats on the subject? G. E. L.

ANSWER.—In anomalies like the above described case, the proper treatment, when possible, is to make an incision in the mid-line of the perineum, preserving the muscles as much as possible in separating them bluntly, finding the lowest point of the bowel and bringing it down, opening it and suturing the opening to the skin. At times the bowel is found so high up that it seems impossible to bring it down to the skin at the first operation. The bowel, however, seems to descend later so that at a secondary operation the object may be accomplished. Technic of the operation may be found in most works on rectal surgery, but is particularly well described in Tuttle's work.

CONTINUOUS WATER BATHS FOR BURNS.

GALLUP, N. M., Aug. 24, 1906.

To the Editor:—Will you kindly give me composition and method of application of the Hebra bath as used in burns covering extensive surface of the body? W. H. BURR.

ANSWER.—Hebra's bath for extensive burns and other conditions where there is great loss of the epidermis is simply a continuous bath in water which is not medicated. The patients are put in a bath of body temperature with only the head uncovered and are left there indefinitely. Hebra and Kaposi have shown that patients can remain in such a bath for months. The treatment is falling into disuse and we are not disposed to consider it a good method for treating burns.

TENDER HANDS—SENSITIVE TO ANTISEPTICS.

FAIRBANKS, IOWA, Aug. 25, 1906.

To the Editor:—A solution of mercuric chlorid (1-1,000) or of carbolic acid invariably covers my hands with pustules which itch intensely. I understand that bichlorid poisoning is for some an idiosyncrasy. Can you tell me anything to toughen my hands? C. D. BOTHWELL.

ANSWER.—Hands may be toughened somewhat against the effects of antiseptics by bathing them in a dilute solution of subacetate of lead. If this causes too much dryness of the hands they can be softened by greasing with rose ointment.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Sept. 1, 1906:

Heard, George P., asst.-surgeon, ordered to proceed from Fort Wingate, N. M., to Camp of Instruction, near Fort D. A. Russell, Wyo., for temporary duty.

Torney, Geo. H., deputy surgeon general, left Presidio, San Francisco, with insane soldiers, en route to Government Hospital for Insane, Washington, D. C.

Edger, B. J., Jr., asst.-surgeon, reports arrival at Fort Reno, Okla., with 1st Battalion, 25th Infantry, from Fort Brown, Tex.

Scott, Geo. H., asst.-surgeon, reported for temporary duty at Fort D. A. Russell, Wyo., from Camp of Instruction, near Fort D. A. Russell, Wyo.

Pinkston, O. W., asst.-surgeon, left Camp of Instruction, Fort Riley, Kansas, with Troops B and D, 9th Cavalry, on detached duty, en route to Osawatomie, Kansas.

Steer, Samuel L., asst.-surgeon, granted leave of absence for one month and ten days, to take effect about Sept. 1, 1906.

Chamberlain, W. P., asst.-surgeon, granted leave of absence for two months, to take effect about Sept. 4, 1906.

Shellenberger, J. E., cont. surgeon, will proceed from Camp of Instruction, near Austin, Tex., to Fort Sam Houston, Tex., for medical treatment.

McAlister, J. A., Jr., dental surgeon, will proceed from Presidio of Monterey, Cal., to Fort Rosecrans, Cal., for temporary duty.

Porter, E. H., cont. surgeon, is relieved from further duty in the Philippines Division, and on expiration of present leave of absence will proceed to Fort Reno, Okla., for temporary duty.

Richardson, G. H., cont. surgeon, having completed the duties assigned him at Seattle, Wash., will proceed to Presidio of Monterey, Cal., for temporary duty.

Rhoades, Rex H., dental surgeon, will proceed from Columbus Barracks, Ohio, to Fort Sheridan, Ill., for duty.

Wing, F. F., dental surgeon, left Fort D. A. Russell, Wyo., for Camp of Instruction, near Fort D. A. Russell, Wyo.

Davis, O. F., cont. surgeon, left Camp of Instruction, near Fort D. A. Russell, Wyo., for Fort Des Moines, Iowa.

Davis, O. F., will proceed from Fort Des Moines, Iowa, to Camp of Instruction, near Fort D. A. Russell, Wyo., for duty as witness before a general court martial.

Byars, C. R., cont. surgeon, left Jefferson Barracks, Mo., on practice march with 3d Squadron, 9th Cavalry.

Trucholtz, C. A., cont. surgeon, arrived at Fort Apache, Ariz., from Fort Bayard, N. M., for temporary duty.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the two weeks ending Sept. 1, 1906:

Elliott, M. S., surgeon, detached from the *Florida* and ordered to the *St. Louis*.

Iden, J. H., passed asst.-surgeon to the *Florida*.

Pease, T. N., asst.-surgeon, resignation as an assistant surgeon in the Navy accepted to take effect August 21.

Jones, A. McK., acting asst.-surgeon, to the Naval Hospital, Norfolk, Va.

Beker, M. C., acting asst.-surgeon, to the Naval Hospital, Newport, R. I.

Longabaugh, R. I., acting asst.-surgeon, ordered to Naval Hospital, Mare Island, California.

E. C. Taylor, asst.-surgeon, to the *Hancock*, Navy Yard, New York, N. Y.

J. A. Randall, passed asst.-surgeon, to the Navy Recruiting Station, Denver.

H. L. Brown, asst.-surgeon, detached Navy Yard, Washington, D. C., etc., to the Navy Recruiting Station, Pittsburg, Pa., temporary duty; thence home and wait orders.

N. H. Drake, medical inspector, when discharged treatment Naval Hospital, New York, N. Y., to Washington, D. C., Oct. 1, 1906, examination for retirement, then to home and wait orders.

F. W. S. Dean, asst.-surgeon, detached Navy Recruiting Station, Denver, etc., to Washington, D. C., Sept. 6, 1906, examination for promotion, then await orders.

E. L. Jones, asst.-surgeon, detached Naval Hospital, Mare Island, Cal., Sept. 15, 1906, to duty in attendance on the course of instruction at the U. S. Naval Medical School, Washington, D. C., Sept. 29, 1906.

J. E. Gill, asst.-surgeon, to the Navy Recruiting Station, St. Louis, Sept. 1, 1906, for temporary duty, thence to the Navy Yard, Washington, D. C.

F. A. Asserson, passed asst.-surgeon, to *Columbia*, Sept. 4, 1906.

F. H. Brooks, asst.-surgeon, detached *Columbia*, to the Naval Hospital, Newport, R. I., for treatment.

B. H. Dorsey, asst.-surgeon, to the Navy Recruiting Station, Des Moines, Iowa, Sept. 5, 1906.

E. J. Grow, surgeon, detached *Mohican*, to *Ohio*.

H. E. Odell, passed asst.-surgeon, detached *Galveston*, to *Wisconsin*.

G. M. Olson, asst.-surgeon, detached *Wisconsin*, to *Galveston*.

C. P. Kindleberger, surgeon, detached Naval Station, Olongapo, P. I., to *Baltimore*.

H. G. Beyer, medical inspector, detached *Ohio*, to *Rainbow*.

F. E. Sellers, asst.-surgeon, detached *Ohio*, to *Mohican*.

G. H. Barber, surgeon, detached *Wisconsin*, to the Naval Station, Olongapo.

R. Spear, surgeon, detached *Baltimore*, to the Naval Hospital, Canacap, P. I.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital service for the seven days ending August 29, 1906:

Sawtelle, H. W., surgeon, relieved from duty at San Francisco.

Gassaway, J. M., surgeon, relieved from duty at St. Louis and directed to proceed to Philadelphia, assuming command of the service and relieving Surgeon Fairfax Irwin.

Godfrey, John, surgeon, granted leave of absence for seven days, from Aug. 26, 1906.

Godfrey, John, surgeon, granted an extension of leave of absence for fourteen days from Sept. 2, 1906.

Irwin, Fairfax, relieved from duty at Philadelphia, and directed to proceed to Detroit, assuming command of the service at that port, relieving Passed Asst.-Surgeon Grubbs.

Carmichael, D. A., and Wertenbaker, C. P., surgeons, and Rucker, W. C., asst.-surgeon, detailed to represent the service at the meeting of the Association of Military Surgeons, Buffalo, N. Y., September 11-14, 1906.

White, J. H., surgeon, directed to proceed to Natchez, Miss., for special temporary duty, on completion of which to rejoin his station.

Oakley, J. H., passed asst.-surgeon, granted twenty days' leave of absence, from Aug. 30, 1906.

Grubbs, S. B., passed asst.-surgeon, relieved at Detroit and directed to proceed to St. Louis, assuming command of the service and relieving Surgeon J. M. Gassaway.

Lumsden, L. L., passed asst.-surgeon, leave of absence granted for two months, from June 1, 1906, amended to read one month only.

Corput, G. M., passed asst.-surgeon, granted one month's leave of absence, from Aug. 30, 1906.

McLaughlin, A. J., passed asst.-surgeon, granted leave of absence for one month, from Aug. 15, 1906.

Ward, W. K., asst.-surgeon, granted leave of absence for five days, from Aug. 20, 1906, under paragraph 191 of the Regulations.

Hunt, Reid, chief, division of pharmacology, detailed to attend the meeting of the Council on Pharmacy and Chemistry of the American Medical Association, Indianapolis, Sept. 1, 1906.

Harkin, F. McD., acting asst.-surgeon, granted leave of absence for twelve days, from Aug. 28, 1906.

Marsh, W. H., acting asst.-surgeon, granted leave of absence for nine days from Sept. 8, 1906.

Taylor, A. S., acting asst.-surgeon, granted leave of absence for sixteen days, from Aug. 19, 1906.

Townsend, Wesley, acting asst.-surgeon, granted leave of absence for seven days.

Woods, C. H., pharmacist, granted leave of absence for seven days, under paragraph 210 of the Regulations.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Serive, during the week ended August 31, 1906:

SMALLPOX—UNITED STATES.

New York: August 11-18, 1 case.

Texas: Houston, August 11-18, 1 case.

Washington: State, July 1-31, 5 cases; Spokane, August 11-18, 1 case; imported:

China: Ninchwang, July 7, 1 case.

France: Marseilles, July 1-31, 5 deaths.

Gibraltar: August 5-12, 1 case.

Great Britain: Liverpool: August 4-11, 1 death.

India: Bombay, July 17-24, 3 deaths; Calcutta, July 7-14, 3 deaths; Karachi, July 15-22, 4 deaths; Madras, July 14-20, 3 deaths; Rangoon, July 7-14, 3 deaths.

Italy: General, July 26-August 9, 18 cases.

Nicaragua: Bluefields, August 2-9, 1 case.

Russia: Moscow, July 21-August 4, 7 cases, 4 deaths; Odessa, July 28-August 4, 2 cases.

Siberia: Vladivostock, July 5-14, 3 cases, 1 death.

Spain: Barcelona, August 1-10, 11 deaths; Cadiz, July 1-31, 1 case.

YELLOW FEVER.

Cuba: Habana, August 25, 1 case.

Mexico: Merida, August 5-11, 8 cases, 3 deaths; Tierra Blancha, August 5-11, 1 case, 1 death; Vera Cruz, August 21, 1 case.

CHOLERA—INSULAR.

Philippines: Manila, June 30-July 14, 268 cases, 243 deaths; Provinces, July 7-14, 247 cases, 177 deaths.

CHOLERA.

India: Bombay, July 17-24, 97 deaths; Calcutta, July 7-14, 8 deaths; Madras, July 14-20, 9 deaths; Rangoon, June 30-July 7, 1 death.

Straits Settlements: Singapore, May 30-June 12, 2 cases 2 deaths.

PLAGUE.

Australia: Adelaide, July 12, 1 case on steamship *Britania*, Fremantle, June 23-30, 1 case; Sydney, June 23-30, 2 cases 1 death.

Arabia: Djeddah, July 16-22, 11 cases; 11 deaths.

Brazil: Bahia, June 30-July 28, 5 cases, 3 deaths.

China: Amoy, July 24, epidemic.

Greece: Athens, July 21-26, 2 deaths.

India: Bombay, July 17-24, 34 deaths; Calcutta, July 7-14, 10 deaths; Karachi, July 15-22, 17 cases, 16 deaths; Rangoon, June 30-July 14, 319 deaths.

Peru: Lima, July 9, 3 cases; Mollendo, July 9, 4 cases; Palta, July 8, 8 cases; Trujillo, June 9, 3 cases.

Society Proceedings

COMING MEETINGS.

Med. Soc. of the State of Pennsylvania, Bedford Springs, Sept. 11-13
Washington State Medical Association, Spokane, Sept. 11-13.
Assn. of Military Surgeons of the U. S., Buffalo, N. Y., Sept. 11-14
Am. Assn. of Obstetricians and Gynecol., Cincinnati, O., Sept. 20-22
American Electro-Therapeutic Association, Philadelphia, Sept. 18-20
Medical Association of District of Columbia, Washington, Oct. 2.
Idaho State Medical Society, Lewiston, Oct. 4-5.
Colorado State Medical Society, Denver, Oct. 9-11.
Delaware State Medical Society, Wilmington, Oct. 9.
Medical Society of Virginia, Charlottesville, Oct. 9-11.
Kentucky State Medical Association, Owensboro, Oct. 10-12.
Vermont State Medical Society, Barre, Oct. 11-12.
American Association of Railway Surgeons, Chicago, Oct. 17-19.

AMERICAN ROENTGEN RAY SOCIETY.

Seventh Annual Meeting, held at Niagara Falls, N. Y., Aug 23-30, 1906.

The President, DR. HENRY HULST, Grand Rapids, Mich., in the Chair.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. Preston M. Hickey, Detroit; vice-presidents, Dr. Percy Brown, Boston; Dr. S. Cummings, Toronto; Dr. Arthur Holding, Boston; Dr. George E. Pfahler, Philadelphia; Dr. George H. Stover, Denver; secretary, Dr. George C. Johnston, Pittsburg; treasurer, Dr. L. E. Custer, Dayton, Ohio; executive committee, Dr. Joseph F. Smith, Chicago; Dr. F. H. Baetjer, Baltimore; Dr. Kennon Dunham, Cincinnati.

The time and place of the next meeting are to be decided later by the executive committee.

(To be continued.)

BRITISH MEDICAL ASSOCIATION.

Seventy-fourth Annual Meeting, held in Toronto, Ontario, Aug. 21-25, 1906.

(Continued from page 707.)

SECTION ON PSYCHOLOGY.

The session of the Section on Psychology was presided over by Dr. William Julius Mickle of London.

Symposium on General Paresis.

Etiology.—DR. ALLEN R. DIEFENDORF, Middletown, Conn., argued for the greater consideration of other causes in conjunction with syphilis, especially traumata of a mental sort, such

as excessive strain, shock, worry, etc. He freely admitted the predisposing influences of syphilis, but said that syphilis alone is not entirely adequate as a cause. In the discussion of the paper the consensus of opinion was that general paresis, in its ultimate etiology, is a product of syphilis.

Symptoms.—DR. WILLIAM J. MICKLE, London, in introducing the general discussion in the Symposium on General Paresis, read an exhaustive paper covering the symptomatology and pathology with the pathogenesis and prognosis. Acute delirium, in some obscure diseases, is often due to and is associated with general paralysis. So likewise are acute microbic infections and bromids and other intoxications behind the paretic manifestations. Sometimes there is a relationship or at least an association between paranoia and deliria and general paralysis. Four general types of general paresis may therefore be readily recognized. The first includes the degenerates with deliria, but without the physical signs; in the second are the alcoholic and toxic dements; the third represents paranoiac degenerates, while the fourth includes the degenerates that ultimately become demented. In all of these cases dementia is the cardinal manifestation. This gives a broad conception to the term dementia paralytica. Pathologically, the disease is a meningo-encephalitis. There is a double morbid process going on, the one being parenchymatous and degenerative in character, the other interstitial and inflammatory, or at least vascular. Dr. Mickle did not consider the disease so hopeless as many do. Sometimes there is a partial recovery, with only the faintest tracing left of the previous grandiosa ideas. No somatic symptoms remain at all. The individuals go about their work for years as not only harmless but as useful citizens. The author claims that there is recovery from general paresis, because the disease is terminated when there is a separation and disposal of the mental or psychic symptoms. A partial recovery of this sort has been known to continue for thirty or forty years.

The New Psychology.

DR. ALFRED G. SCOFIELD, London, briefly explained the new psychology. He emphasized the existence of the two minds, the conscious and the subconscious or unconscious. Each has its own particular diseases. For example, hysteria, he believes, is disease of the subconscious mind, whereas many of the ordinary mental diseases are affections of the conscious mind.

Staining the Cerebral Nervous System and Relation of Epilepsy to the Central Nervous System.

DR. JOHN TURNER, Brentwood, Essex, presented these two interesting papers, largely illustrated with stereopticon views, showing the cellular changes of the vascular alterations found postmortem in epilepsy.

Cerebral Localization.

DR. CHARLES K. MILLS, Philadelphia, presented in abstract his paper on "Cerebral Localization in the Study of Psychiatry." After giving a brief historical sketch of his efforts and those of others in this line, the author argued that psychic symptoms, generally in their last analysis—hallucinations, illusions, delusions—are often the result of sensory-cortical disease. Clinical experience and postmortem observations occasionally demonstrate this fact. Psychologic analysis, logic and physiologic data all go to uphold the thesis that mind is the product of brain activity. The brain is a compound, complicated organ, with the working of whose parts (cortical) we are becoming pretty accurately acquainted. The functions of these parts or localizations are easily recognized, singly or in association, as lying behind what we now denominate as psychic manifestations. If this be so, then a disturbance in these psychic manifestations may well be expected to be accounted for on the basis of some cortical brain lesion. This offers a possible physical basis for psychiatry and will remove psychiatry from the plane of a mere functional to that of an organic science. In consonance with this conception of psychiatry, the author detailed a classification of mental diseases different from any hitherto proposed, and based on teratologic and pathologic grounds.

DISCUSSION.

DR. L. HARRISON METTLER, Chicago, in discussing this paper, said that, in general, the position taken by Dr. Mills was incontrovertible. It was an advanced view of psychiatry which would ultimately lead to the abolition of psychiatry as a special department of medicine or the reduction of it to the position of being a part of neurology. The newer physiologic psychiatry has already practically reduced all psychic manifestations to a sensory-motor basis. An idea is the product of the sensory-motor reactions, and all psychoses are the outgrowths ultimately of ideas. If this be so, it follows that the functional interplay of the various sensory-motor centers of the brain, whether in conjunction with, or apart from the inhibitory influence of the prefrontal lobes, underlies the elaboration of what we now call psychic exhibitions. *Per contra*, therefore, any disease or damage of this interplay must necessarily to a greater or less extent provoke an abnormal psychic display. The cortex is not the only sensory-motor basis of mind, for mind is really a mere expression for our reaction to environment. It represents our whole relational life. Sensation and motility underlie its presentations, but sensations and motility are co-extensive with the whole nervous apparatus, and its relationship to the extra-corporeal world, the somatic world and the world of its own physical activities. Hence, mind, is a mere product, not an entity; its diseases are merely symptomatic, and not integral. On this basis, mental diseases are merely exhibitions of the functional reaction of the individual, as shown, preëminently through the nervous system, and as the essayist has shown, the cerebral cortex, particularly in its prefrontal inhibitory workings. It is somewhat along this line that Wernicke worked in his efforts to solve psychiatric phenomena on the basis of known psychologic data in connection with the cortex.

DR. CHARLES H. HUGHES, St. Louis, said that he had always regarded insanity as a disease, and being a disease as having as physical basis, a lesion of some part, though the nature of this lesion, is usually beyond our present powers of investigation.

Epilepsy.

A general discussion on epilepsy was participated in by Drs. W. Alden Turner, London; W. D. Spiller, Philadelphia; Sanger Brown, Chicago; Charles H. Hughes, St. Louis; William P. Spratling, Sonyea, N. Y., and Charles K. Mills, Philadelphia. There was, of course, the usual diversity of views in certain details, but in the main nothing new was advanced.

Sterilization of Undesirable Denegerates.

DR. ROBERT RENTOUL, Liverpool, advanced extremely radical views on this subject, and his paper provoked a great deal of discussion. The author proposed that a certain class of defectives, both men and women, should be operated on in such a manner that the sexual desire and the power of sexual intercourse should not be molested, but that the ability to procreate should be destroyed. The feasibility of such an operation is now well established, but its desirability for the purposes proposed was what raised the question. In Dr. Rentoul's opinion it was considered advisable, and in his paper he made arguments for and against the operation. He did not, however, state the exact class of persons on whom it should be performed.

Insanity of Inebriety.

DR. THOMAS D. CROTHERS, Hartford, Conn., read a paper which provoked considerable discussion, in which he described the various insane manifestations of the inebriate, and ultimately concluded that all alcoholics, whether heavy or moderate drinkers, should be looked on as mentally unbalanced individuals. There may be a question of the degree of mental instability in individuals, but as to the abnormality of their mental state, he said there could hardly be any question. Annually in the United States about 100,000 men die from the direct or the indirect effects of alcohol. The question of the habit is, therefore, a most serious one, both for the individual and for society. The medical profession does not take the interest in this question that it should, and probably because alcoholism and tippling are not strongly enough looked on as a disease. It is a disease, and the victim should be studied and treated as a distinctly diseased individual.

Devolutional Psychoses.

The "Types of the Devolutional Psychoses" were most interestingly elucidated with the aid of a chart by Dr. C. B. Farrar, Baltimore. The paper should be read as a whole and can not be abstracted satisfactorily.

Dementia Præcox.

DR. CHARLES CLARKE opened the discussion on this subject. The present status of this nosologic entity, if indeed it be such, was outlined. The author presented no definite opinion, but in a very able way gave the history of the rise and adoption of the term, the various meanings assigned to it by different alienists, and the generally unsettled views as to what is exactly meant by dementia præcox. Kraepelin himself had modified his earlier views, and many were still inclined to dissent from him in his later views. Asylum records showed entries of dementia præcox as high as 40 per cent., and yet Kraepelin had stated that of all mental diseases dementia præcox constituted about 15 per cent. Evidently there must be some explanation for this wide discrepancy. The author, however did not make any explanation.

DISCUSSION.

DR. ADOLPH MEYER, New York, in the discussion, after showing that a too narrow limitation has been put on Kraepelin's conception of the disease, described, in a most vivid manner, the symptomatology of the cases usually classified under this head. He then elaborated the newer view in psychology that, after all, mental diseases are rather expressions of the individual's reaction to environment, this reaction being largely determined by the preceding heredity and disciplinary influences. In other ways the victim is not the possessor of a nosologic entity, a something added to him, as it were. He is not to be pigeon-holed into this or that mental catalogue of diseases; but, on the contrary, he is born with certain deficiencies and these are, by vicious training or habit, made worse. As a result, he reacts to his environment in a certain way, in consequence of these influences, and this reaction is his psychic exhibition of mental disease. In this sense, dementia præcox is a condition rather than a disease. It is a degenerate reaction of a defective in his surroundings. It varies in degree, from mere indifference all the way up to complete negativism and dangerous outbursts. As a condition, dementia præcox would be better looked on in perspective as a principle at work and reaching back through the individual's past and ancestry, rather than as an assemblage of present rule-of-thumb symptoms. Not its mere termination, nor even its course is of vital importance, but rather the deterioration of habits, the lowering of instincts which it reveals and which etiologically are the outcome of heredity, neuropathic and disciplinary inadequacies. There is no definite histo-pathology of the conditions. We need further data in this respect. All organs, glands and tissues of the body need to be closely studide, even then we may not reach a complete solution. The individual's own mind must be closely observed in its own workings, for the mind can demoralize and undermine itself.

DR. F. X. DERCUM, Philadelphia, said that dementia præcox was admittedly a bad term. It is merely one of expediency, and represents a condition in which the organism as a whole is defective. At first view, it appears to be a functional state leading to some hope of a better outlook, but as time goes on, this hope is usually turned into disappointment. The patient has lost his adjustment to his environment because he was originally defective. The neuropathic histology is important in the etiology of the disease, though infection, nutrition and discipline may all be influential in one way or another in the elaboration of the disease. It is a question for further solution whether the symptoms are functional or structural, inorganic, toxic or organic. It would seem that we are here dealing, at all events, with some altered nutrition or defective metabolism, and consequently with organic degenerative conditions. Kraepelin, like Lister in regard to antisepsis, has performed a stroke of genius in gathering together all of these manifestations of degeneracy of a particular type, putting them into a class, with subclasses, by themselves, and, in general, indicating their prominent characteristics.

DR. L. HARRISON METTLER, Chicago, said that confusion and discrepancies surrounding the term and the conception of Kraepelin's dementia præcox arose from the fact that an effort was being made to name and crystallize into a distinct disease a psychiatric entity which could not be so crystallized or stamped. In his opinion it was a wrong conception of a psychosis, to attempt to make fixed clinical types of certain varied mental manifestations. As Dr. Meyer had indicated, a psychosis is merely the expression of the individual's reaction to his past and present environment. Each individual has his own mode of reaction, depending on a vast complicated mass of hereditary, structural and functional factors. It is the latter we should look to and subject to the closest scrutiny in order to interpret the why and wherefore of the particular individual's psychic manifestations, study each patient *per se*, as Wernicke was wont to do, and account for his exhibitions on the basis of his own history. As had already been stated by those who uphold dementia præcox as a disease, one had to take a perspective view of the disease in every case, had to look back over its progress and not merely at its present symptomatic presentations. The latter have nothing distinctive, and therefore do not portray any distinct disease-entity. Therefore, the upholders of dementia præcox as a disease virtually admit that they diagnosed not a disease but the individual psychic reactions. Dementia præcox is this and nothing more.

Treatment of the Insane.

DR. E. W. RYAN, Kingston, Ont., presented a very practical paper on "Public and Modern Hospital Methods and the Treatment of the Insane."

DR. THOMAS J. MOHR, Brockville, Ont., read a paper, equally practical in its illustrations, on "Occupation as a Factor in the Treatment of the Insane."

(To be continued.)

AMERICAN ORTHOPEDIC ASSOCIATION.

Twentieth Annual Meeting, held in Toronto, Canada, Aug. 20-22, 1906.

(Continued from page 705.)

Treatment of Spinal Curvature.

DR. FRANK E. PECKHAM, Providence, R. I., read a paper entitled "The Treatment of Rotary Lateral Curvature of the Spine. Results." For purpose of treatment, the author considers only two factors, notation and rigidity. The greater the rotation and rigidity, the worse the prognosis. All non-symmetrical exercises have been discarded, and the results have improved. The exercises given to any one patient are simple and few, but are performed with great effort at exactness and self-correction, under constant supervision. Each patient must come every day for the exercises, and no exercising is done at home. Three pound dumb-bells and occasionally the elastic exerciser are the only apparatus used. Plaster Paris jackets applied with the patient forcibly corrected by means of thrust-rods in a horizontal frame are occasionally needed in rigid cases, but must be followed by faithful gymnastic work.

Results o. Posture.

DR. HENRY O. FEISS, Cleveland, read a paper entitled "Demonstration of Models to Illustrate the Mechanical Tendencies of Posture in the Normal." Model of thorax illustrates: (1) With the segmental motion of the thorax and with the tissue resistance of the lateral walls, distortion will take place in the rib walls if there is any elasticity present; (2), lateral bend has a direct tendency to distort them, and twist has a less direct tendency to do so. Model of vertebra and ribs illustrates: (1) Whatever the tendency for motion is present in the vertebra in nature, it will, if freed, tend to move on its own axis, which is distinct from the axis of motion of the thoracic segment; (2) the vertebral axis will divert from the direction of the median line of the base toward the side on which the curve of the rib prevents the greatest convexity.

DR. JOEL E. GOLDTHWAIT, Boston, read a paper entitled, "Anterior Flexion of the Upper Angle of the Scapula as a Cause of Persistent Forward Shoulder, as Well as of Pain and Crepitation in the Scapular Region." Anatomic study of the development of the scapula shows the wide variation of the shape of the upper part. The upper part may acquire a forward bend due to muscle pull when the shoulders are held habitually forward. The crepitation is due to the forward-bent upper margin of the scapula sliding over the angles of the ribs, causing a mechanical irritation, and is not due to a bursitis, as formerly supposed. The treatment consists in excising the offending upper margin of the scapula. This stops the pain and crepitation. In women, the incision is made low and the flap dissected up so that the scar shall not show above a low-neck dress.

DISCUSSION.

DR. ROBERT W. LOVETT, Boston, in discussion of the foregoing papers, said that lateral curvature requires exercise in large doses. The German custom is to require four to six hours daily. Why should American orthopedic surgeons be willing to impair their results through under dosage? It is now needed to apply what we know to what we want to do.

DR. COMPTON RIELY, Baltimore, said that he had some time ago explained the rib distortion in scoliosis by altered tension of the parietal muscles due to a tilt of the pelvis.

DR. REGINALD H. SAYRE, New York, said that lateral curvature produced by forces acting twenty-four hours a day could be overcome only by prolonged application of the correcting means used.

DR. J. T. WATKINS, San Francisco, referred to certain cases of scoliosis which had not improved under exercising until they were put to bed on curved stretchers in the periods between exercising.

DR. GWILYM G. DAVIS, Philadelphia, said that, as the wound in Dr. Ryerson's case was below the point where it could have done much damage to the nerves supplying the abdominal muscles, the trouble, if due to the muscles at all, must be due to the surgeon's incision.

DR. RYERSON said that he thought the damage to the muscles in his case was not due to the nerves but to separation of the cut ends of the muscles.

Potts' Disease.

DR. COMPTON RIELY, Baltimore, said that forward tilting of the pelvis is an important factor in production of the deformity, and it is important to restore it to its normal attitude in preventing and reducing pain, paralysis and deformity. Early diagnosis of Potts' disease in the adult is difficult, and is greatly aided by the *x*-ray taken in such a way as to show abscess.

DISCUSSION.

DR. JOHN RIDLON, Chicago, said that Potts' disease in adults is commoner than supposed. He reported two cases.

DR. CHARLES F. PAINTER, Boston, said that the abscesses shown in the radiographs might be due to retroperitoneal glands.

DR. S. C. BALDWIN, Salt Lake City, reported a case of Potts' disease in an adult, with deeply cyanosed legs. The cyanosis was relieved by treatment of the Potts'.

DR. JAMES K. YOUNG, Philadelphia, reported three cases of Potts' disease in adults, in whom the disease had not been suspected. Unilateral pain is a common symptom in adults.

DR. JOEL E. GOLDTHWAIT, Boston, said that aneurism must be considered in diagnosis of these cases.

DR. ARTHUR T. GILLETTE, St. Paul, Minn., reported a case relieved by a jacket, in which autopsy proved the trouble to be aneurism.

DR. RIELY said that he made the diagnosis of Potts' disease on the physical signs as well as on the radiograph.

The Etiology of Juvenile Lateral Deformities of the Spine.

DR. MAX BOEHM, Boston, said that anatomic study shows frequency of structural asymmetries of the spine, consisting of numerical variations, so-called, that is, the occurrence on one side of a vertebra of characteristics of one vertebral type, and on the other side characteristics of another type. These numerical variations occur usually at the cervicodorsal, dorsolumbar, and lumbosacral junctures, and result in such anomalies as atypical sacral wings and cervical ribs. Such asymmetries can readily account for scoliosis. In twenty clinical cases of scoliosis, examined with special care by the *x*-ray, numerical variations of the kind to be expected from the kind of curve were found in 85 per cent.

DISCUSSION.

DR. ARTHUR H. FREIBERG, Cincinnati, said that the specimens of spines with numerical variations were singularly free from curvature. Numerical variations will not account for the progressive character of scoliosis. If a short leg does not produce a progressive scoliosis, why should a slight anatomic variation?

DR. GWILYM G. DAVIS, Philadelphia, said that unmercial variations would not account for the great preponderance of the right dorsal convex type of curve.

DR. BOEHM said that the anatomic specimens of spines with extensive numerical variations did show curves. The curve does not come on till puberty because up to that time all the vertebræ are of one type, and the potential variations are therefore not operative till then. This accounts also for the progressiveness of scoliosis, though due to a fixed set of variations. A short leg is less fundamentally disturbing to the spine than numerical variations. Preponderance of the right dorsal convex type is dependent on the tendency of anatomic variations to contract the left side.

Resection of Knee to Obtain a Movable Joint.

DR. GWILYM G. DAVIS, Philadelphia, read a preliminary report of a case of apparently bony ankylosis, at 130 degrees, with patella adherent, of three years' standing, following acute rheumatism. Excision was done and a flap of fascia and muscle turned in between raw bone surfaces. Mobility was successfully attained.

The Cause of Straddling Gait in Bow-Legs.

DR. P. HOFFMAN, St. Louis, said that children with bow-legs usually walk with the legs and feet widely separated. The common explanation is that this is to maintain equilibrium. The more logical explanation is that it is to allow the lower parts of the legs to be perpendicular to the ground. With the feet together, the weight would be on only the outer margins of the feet, or else the feet would be pronated, producing in either case foot-strain.

He also read a paper entitled "The Correct Principle in the Construction of Knock-Knee Braces." The *x*-ray has shown that the deformity in knock-knee is an inward convexity commonly located at the upper end of the tibia, sometimes at the lower end of the femur, sometimes at both places. The deformity is rarely, if ever, at the knee itself. A brace exerting outward pull or pressure on the knee expends its force mainly when the knee is flexed even only a little in rotating the femur. What directly outward pressure on the knee there is acts largely on the lateral ligaments and tends to produce an unstable joint. The correct brace should exert corrective force directly on the abnormal curve or curves and not on the knee.

Protective Immunization Against Joint Tuberculosis.

DR. CHARLES F. PAINTER, Boston, reported work on immunization by small repeated doses of tuberculin, not more than ¼ mg. at a dose. The work thus far is only preliminary.

DISCUSSION.

DR. JOEL E. GOLDTHWAIT, Boston, said that the research conducted by Dr. Painter incidentally showed the nearly constant presence of tubercle bacilli in smears of the pus from cold abscesses. This pus should be as cautiously handled, therefore, and disposed of as tuberculous sputa.

Exceptional Rachitic Distortions of the Legs.

DR. WALLACE BLANCHARD, Chicago, remarked that skiagraphy shows occasional unusual types of deformities. These should be corrected according to the particular indications. The osteoclasp in all cases should be applied on the external surface of the leg.

(*To be continued.*)

State Boards of Registration

COMING EXAMINATIONS.

MASSACHUSETTS Board of Registration in Medicine, State House, Boston, September 11-12. Secretary, Edwin B. Harvey, Boston.

IOWA State Board of Medical Examiners, Capitol Building, Des Moines, September 11-13. Secretary, J. F. Kennedy, Des Moines.

OKLAHOMA Board of Medical Examiners, Guthrie, September 25. Secretary, J. W. Baker, Enid.

NEW YORK Boards of Medical Examiners, Albany, September 25-28. Chief of Examining Division, Charles F. Wheelock, Albany.

UTAH State Board of Medical Examiners, Salt Lake City, October 1. Secretary, R. W. Fisher, Salt Lake City.

ARIZONA Board of Medical Examiners, Phoenix, October 1-2. Secretary, Ancil Martin, Phoenix.

COLORADO State Board of Medical Examiners, Denver, October 2. Secretary, S. D. Van Meter, Denver.

IDAHO State Board of Medical Examiners, Lewiston, October 2. Secretary, J. L. Conant, Jr., Genesee.

MONTANA Board of Medical Examiners, Senate Chamber, The Capitol, Helena, October 2. Secretary, Wm. C. Riddell, Helena.

MINNESOTA State Board of Medical Examiners, Old Capitol Building, St. Paul, October 2-4. Secretary, W. S. Fullerton, St. Paul.

NORTH DAKOTA State Board of Medical Examiners, Grand Forks, October 2-4. Secretary, H. M. Wheeler, Grand Forks.

RHODE ISLAND State Board of Health, Room 313, State House, Providence, October 4-5. Secretary, Gardner T. Swarts, Providence.

GEORGIA Board of Medical Examiners (Regular), Capitol, Atlanta, October 9. Secretary, E. R. Anthony, Griffin.

ARKANSAS State Medical Examining Board, Little Rock, October 9. Secretary, J. P. Runyan, Little Rock.

KANSAS State Board of Medical Registration and Examination, State House, Topeka, October 9. Secretary, F. P. Hatfield, Grenola.

MICHIGAN State Board of Registration in Medicine, Lansing, October 9. Secretary, E. D. Harison, Detroit.

MISSISSIPPI State Board of Health, The Capitol, October 9. Secretary, J. F. Hunter, Jackson.

DISTRICT OF COLUMBIA Board of Medical Supervisors, Washington, October 11. Secretary, Geo. C. Ober, Washington.

NEW JERSEY State Board of Medical Examiners, Trenton, October 16-17. Secretary, J. W. Bennett, Long Branch.

TEXAS State Board of Medical Examiners, Houston, October 16-18. Secretary, T. T. Jackson, San Antonia.

FLORIDA Board of Medical Examiners (Regular), Jacksonville, October 17-18. Secretary, J. D. Fernandez, Jacksonville.

ILLINOIS State Board of Health, Great Northern Hotel, Chicago, October 17-19. Secretary, J. A. Egan, Springfield.

LOUISIANA State Board of Medical Examiners, New Orleans, October 19-20. Secretary, F. A. Larue, New Orleans.

INDIANA Board of Medical Registration and Examination, Indianapolis, October 23-25. Secretary, W. T. Gott, Indianapolis.

Indiana May Report.—Dr. W. T. Gott, Secretary of the Indiana Board of Medical Registration and Examination of Indiana, reports the written examination held at Indianapolis, May 22-24, 1906. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 750 out of 1,000 possible points. The total number of candidates examined was 179, of whom 170 passed, including 7 osteopaths, and 9 failed, including 3 osteopaths. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Indiana Med. Coll.	(1906) 76.1, 76.1, 77.4, 77.4, 79.7, 80.5, 81, 81, 81.5, 82, 82.1, 82.1, 82.8, 83.6, 84.5, 85.1, 85.4, 85.8, 85.9 86, 86.2, 86.8, 86.9, 86.9, 87, 87.3, 87.4, 87.5, 87.6, 87.6, 87.7, 87.9, 87.9, 88, 88, 88.2, 88.2, 88.3, 88.5, 88.5, 88.6, 88.7, 88.7, 88.88, 88.9, 89, 89, 89.1, 89.1, 89.2, 89.3, 89.4, 89.4, 89.5, 89.6, 89.8, 90, 90.1, 90.2, 90.2, 90.2, 90.4, 90.4, 90.5, 90.6, 90.6, 90.7, 90.7, 90.7, 90.7, 90.7, 91, 91.1, 91.1, 91.1, 91.2, 91.2, 91.2, 91.2, 91.3, 91.4, 91.5, 91.6, 91.6, 91.6, 91.9, 92, 92, 92.1, 92.1, 92.2, 92.4, 92.5, 92.5, 92.5, 92.6, 92.6, 92.6, 92.9, 93.2, 93.3, 93.4, 93.8, 93.9, 94.2.	
Medical College of Indiana	(1904)	91.2
Physio-Med. Coll. of Indiana (1904) 88.4; (1906) 84.7, 86.9, 88.2, 89.4, 93.3.		
Eclectic Med. Coll. of Indiana (1905) 79.7; (1906) 86.2, 87.4, 88.3, 89.8.		
Ft. Wayne Coll. of Medicine	(1905)	78.9
Hahnemann Med. Coll., Chicago	(1906)	88.5, 89.6
Bennett Eclectic Med. Coll., Chicago	(1905)	90.3 91.8
Chicago Homeo. Med. Coll.	(1904)	91.2
Illinois Med. Coll.	(1905) 87.6, 89.3, 89.4, 89.5 (1906)	85.7 86.4
Rush Med. Coll.	(1894) 93; (1902)	92.7
College of P. & S., Chicago	(1905)	85.8
Northwestern Univ. Med. School	(1904)	89.6
University of Louisville	(1905)	83.4, 89.1, 89.5
Kentucky School of Med.	(1905)	84.6
Kentucky University	(1905)	85.6 88.3
Louisville Med. Coll.	(1903)	91.3
Southwestern Homeo. Med. Coll.	(1905)	83.9
Johns Hopkins Med. School	(1904)	89.8
Baltimore University	(1897)	82.9
University of Michigan	(1905)	89.2
College of P. & S., St. Louis	(1891)	89.5
St. Louis Univ. (Marion Sims Beaumont Med. Coll.)	(1905)	81.7
New York University	(1891)	94.4
Toledo Med. Coll.	(1905)	86.
Eclectic Med. Inst. (1884) 84.9; (1903) 75.5; (1904) 83; (1905) 93.2, (1906) 82.8, 86, 86.6, 91.3.		
Jefferson Med. Coll.	(1905)	91.1
Med. Coll. of Ohio	(1902)	90.4
Ohio Med. University	(1906)	93.7
Wisconsin Coll. of P. & S.	(1906)	94.3
University of Toronto	(1905)	89.7
Edinburgh University, Scotland	(1901)	89.2

FAILED.

Indiana Med. Coll.	(1906) 63.3, 72.1, 72.2, 74.1	
Med. Coll. of Indiana	(1904)	69.2
Southwestern Homeo. Med. Coll.	(1903)	73.3

The following questions were asked:

ETIOLOGY AND HYGIENE.

1. Give etiology and hygienic management of scarlatina. 2. Croupous pneumonia. 3. Pulmonary tuberculosis. 4. Typhoid fever. 5. Summer diarrheas of infancy and childhood.

LARYNGOLOGY AND RHINOLOGY.

1. Give diagnos's and treatment of nasal polypi. 2. What constitutional diseases may present local manifestations in the nose?

MEDICAL JURISPRUDENCE.

1. What organ is generally the first and which the last to undergo putrefaction? 2. How would you distinguish between an incised wound made before and after death?

NEUROLOGY.

1. Give etiology of multiple neuritis. 2. What are the diagnostic symptoms of cerebral tumor? 3. Give diagnostic symptoms of multiple sclerosis.

OPHTHALMOLOGY AND OTOLOGY.

1. Give symptoms, diagnosis, prognosis and treatment of gonorrheal conjunctivitis. 2. Give etiology and treatment of blepharitis. 3. Give tests for hearing, or how would you test hearing?

PEDIATRICS.

1. (a) When should the treatment of congenital talipes be commenced? (b) State best method for treatment. 2. Give etiology and treatment of cholera infantum.

MATERIA MEDICA AND THERAPEUTICS (ECLECTIC).

1. Give indications for an emetic and name remedies you would use to produces emesis. 2. Name two remedies classed as emmenagogues and give specific indications for each. 3. Give specific indications and dose for (a) bryonia, (b) ipecac, (c) veratrum, (d) quinin and (e) rhus tox. 4. What would you give a patient who presented symptoms as follows: Flushed face, unnaturally bright eyes and contracted pupils, with increased heat of the head? 5. What would you give a patient with symptoms as follows: Dusky redness of the surface, patient dull and inclined to sleep, eyes dull and pupils contracted? 6. Name two anthelmintics, giving dose of each. 7. Give indications for an alkali. 8. Give indications for an acid. 9. Write a prescription in which you use sodii sulphatis, and give indications for its use. 10. Name three antiseptics.

THEORY AND PRACTICE OF MEDICINE (ECLECTIC).

1. How would you distinguish the convulsions of tetanus from an overdose of strychnin? 2. Give symptoms, differential diagnosis and treatment of acute catarrhal gastritis. 3. Give etiology, symptoms, differential diagnosis and treatment of arteriosclerosis. 4. Give symptoms, complications, diagnosis, prognosis and treatment of Addison's disease. 5. Give symptoms, diagnosis and treatment of uremia. 6. Give treatment of neurasthenia. 7. How would you differentiate acute softening of the brain from hemorrhage? 8. What is your idea of constipation and how would you treat it? 9. Write a prescription for the hemorrhage that often occurs in typhoid fever. 10. Give differential diagnosis and treatment of diphtheria.

MATERIA MEDICA AND THERAPEUTICS (HOMEOPATHIC).

1. Give indications for the use of iodoform internally. 2. Give the physiologic action and therapeutic indication for hydrastis canadensis. 3. Mention indications for employing massage. 4. Give therapeutic individuality of kali iodatum. 5. Name two remedies frequently indicated in dropsical effusions. 6. What symptoms determine choice of sulphur in chronic diseases? 7. Differentiate the cough symptoms of ipecacuanha and sanguinaria. 8. Give therapeutic individuality of kali chloricum. 9. Give guiding symptoms of apis mellifica. 10. Name bowel symptoms of mercurous sol.

THEORY AND PRACTICE OF MEDICINE (HOMEOPATHIC).

1. Give diagnosis and etiology of osteomyelitis. 2. State varieties of neuritis and most common cause of each. 3. Name three remedies most frequently indicated in the treatment of chronic nephritis. 4. Give the forms of pneumonia, and differentiate from acute bronchitis. 5. Give etiology, prognosis and treatment of acute articular rheumatism. 6. Define hypnosis. Should it ever be employed in the treatment of disease? If so, when? 7. Give your idea of the merits of suggestive therapy. What class of diseases is most easily influenced by mental processes? 8. Define phlebotomy, and state when it should be employed. 9. Define (a) contagion, (b) infection, and give means for prevention of each. 10. Name two diseases affecting the glandular system, and give remedies ordinarily indicated in each.

MATERIA MEDICA (PHYSIOMEDICAL).

1. What are the therapeutic properties of caulophyllum? 2. What are the properties of cimicifuga race and what is the dose of the fl. ext.? 3. Name three remedial agents that are nervine relaxants. 4. Name agents that increase renal action. 5. Give the therapeutic properties of quinin. 6. In what condition and under what circumstances would you give hydrochlorate of quinin in preference to the sulphate? 7. Give conditions in pneumonia in which you would combine rapsicum and lobelia, and when would you give lobelia alone, and why? 8. Mention five sanative agents that promote increased hepatic action. 9. In what particulars do the cactus grand, and the cerusbonplandii differ in influencing the heart's action, and why? 10. What is the dose and the therapeutic influence of fl. ext. pulsatilla?

THEORY AND PRACTICE (PHYSIOMEDICAL).

1. What are the most common causes of secondary anemia? 2. Give pathognomonic symptoms and treatment in the first stage of pneumonia. 3. A child, one year old, hitherto healthy, has sudden seizure of pain in the region of the stomach; gets cold extrem-

ities, followed by temperature of 101°. Similar attacks follow each day, fever gradually increasing after each attack, declining after each exacerbation, but not entirely disappearing. Tongue broad, pale, with white fur. Appetite variable, digestion fair. Bowels irregular, spleen slightly enlarged. After six months there is very marked anemia. Number of leucocytes unchanged, number of red corpuscles much reduced. Hemoglobin 40. Give diagnosis and treatment. 4. Differentiate between typhoid and appendicitis. 5. How would you manage a case of pulmonary tuberculosis in an ordinary family and home, with a view to the prevention of infection of others? 6. Give diagnostic symptoms of rubeola and scarlatina. 7. What are the positive evidences of anemia and what is the treatment if due to malaria, the plasmodia being present in the blood? 8. In a case with no evidence of organic lesions, the patient complains of pain referred to the stomach and esophagus with a feeling of constriction; symptoms relieved by food in the stomach, worse when stomach is empty; bowels sore and painful, with diarrhea. What would be your diagnosis and treatment and directions as to diet? 9. At what points are the lesions in each of the four cardinal types of aphasia and how is each type manifest? 10. Give differential diagnosis of apoplexy and epilepsy with mode of management of each.

GYNECOLOGY.

1. Define (a) sepsis, (b) asepsis; (c) give aseptic technic. 2. Give symptoms and diagnosis of laceration of the cervix. 3. Give (a) indications for hysterectomy (b) technic of vaginal hysterectomy. 4. Give surgical treatment of cystitis. 5. Give technic of curettage. What is its therapeutic purpose? 6. Give differential diagnosis of benign adenoma (polypoid endometritis) and malignant adenoma (carcinoma).

CHEMISTRY.

1. Give difference between methyl and ethyl alcohol and give common name for each. 2. What is muriatic acid and its formula? 3. What is specific gravity of healthy urine? 4. Give a reliable test for albumin, bile, blood and sugar in the urine. 5. Give test for free acid in the stomach contents.

ANATOMY.

1. Name and locate the colonic flexures. 2. Describe the celiac axis. 3. Give the boundaries of the normal liver. 4. Give the names and origin of the nerves that supply the tongue. 5. Describe the internal saphenous vein. 6. Give the relations of the external carotid artery. 7. Name the large blood vessels that comprise the portal system of veins. 8. Make a drawing showing the origin and communications of the spinal accessory, pneumogastric and glossopharyngeal nerves. 9. Describe the os calcis. Give its relations. 10. What bones of the tarsus are on the proximal side of the line of Chopart's amputation?

MATERIA MEDICA AND THERAPEUTICS (REGULAR).

1. Give the derivation of adrenalin and its physiologic action. 2. Name a vasoconstrictor, give its effect on blood pressure and an indication for its therapeutic application. 3. Name a vasodilator, give its effect on blood pressure and an indication for its therapeutic application. 4. Give technic of hypodermoclysis and an indication for its use. 5. What is the composition of normal salt solution? 6. What value do you attach to sunlight and fresh air as therapeutic agents? 7. Name an efficient urinary antiseptic. 8. How would you apply cold water as an antipyretic? 9. Name an antidote to arsenic. 10. Name an antidote to carbolic acid.

INTERNAL MEDICINE (REGULAR).

1. Give a predisposing cause, symptoms and treatment of cerebral hemorrhage. 2. What is the significance of diminution or absence of the second sound of the heart during the progress of a croupous pneumonia? 3. Describe Cheyne-Stokes' respiration and give its prognostic significance. 4. On what findings would you base a diagnosis of acute Bright's disease? 5. Name some remote pathologic results of syphilis. 6. Give symptoms and diagnosis of scarlatina, and name some of the most frequent sequelæ of the disease. 7. Give symptoms and treatment of intestinal hemorrhage of typhoid fever. 8. Give common cause and treatment of diarrheas of infancy and childhood. 9. How would you treat hemoptysis? 10. Give method of positive diagnosis and treatment of diphtheria.

OBSTETRICS.

1. Does Nature ever fail to set in motion forces that commence labor at the termination of full term? If so, state causes and proper procedure. 2. Name conditions warranting Cesarean section. Give technic of operation. 3. Is the production of abortion ever legally justifiable? If so, state conditions of justification. 4. What advice would you give the *enciente* as to her manner of living during the period of gestation, in order that labor may be made easier? 5. In case positive diagnosis of prenatal death has been established, would you attempt to bring about expulsion of uterine contents? If so, why and when? 6. What foods are most suitable for artificial feeding of the newly born? Give method of modifying or preparing food for best results in artificial feeding. 7. State conditions under which the artificial feeding of infants should be undertaken. 8. Is puerperal infection preventable? If so, give methods of prevention. 9. Give management of breech presentation. 10. Differentiate the convulsions of eclampsia from hysteria.

SURGERY.

1. Give differential diagnosis of appendicitis and small ovarian cyst. 2. Name the differential clinical and pathologic points of carcinoma and sarcoma. 3. Name the fractures of the skull. 4. Give diagnosis and treatment for hemorrhoids. 5. Give diagnosis and treatment of Potts' disease. 6. What is the best known means for an end-to-end anastomosis of the intestine? 7. Give treatment for fracture of middle third of the femur. 8. What structures would be divided in an amputation through the middle of the arm? 9. Give diagnosis of gallstones and the technic for the operation. 10. Give treatment for stricture of the urethra in the male.

PATHOLOGY AND BACTERIOLOGY.

1. What pathologic conditions arise as secondary to mitral insufficiency? 2. What do you understand by the general term degeneration? Name the forms of degeneration. 3. Write in columns the names of the various forms of disease produced by bacteria. 4. What is the most common pathologic factor in inflammation? 5. Define in contrast sarcoma, fibroma and carcinoma. 6. How may the tubercle bacillus be isolated? How may it be cultivated? 7. Mention five varieties of anaërobic bacteria. 8. What conditions are necessary for sterilization by steam at low pressure and at high pressure? 9. How would you examine the blood for Fraenkel's pneumococcus? 10. How would you differentiate bacteriologically between tonsillitis and diphtheria?

PHYSICAL DIAGNOSIS.

1. Give diagnosis of cardiac hypertrophy affecting (a) the left ventricle, (b) the right ventricle. 2. Give physical signs of pericardial effusion. 3. Give diagnosis of thoracic aneurism. 4. Give respiration rate in (a) the newborn; (b) the adult. 5. How may the normal movements of the diaphragm be rendered visible (Litten's phenomenon)?

PHYSIOLOGY.

1. Explain the difference between the function of the kidney and that of a true glandular organ. 2. What organs of the body are purely excretory in their office? 3. What becomes of the gastric and pancreatic juices after they have performed their offices in the digestion of a meal? 4. What do you understand by common sensation and special sensation? 5. Give physiologic definition of the terms systole and diastole, and give the behavior of the blood current during each. 6. Define and give the significance of the dicrotic pulse. 7. Give the physiologic composition of the blood, with the functions of each ingredient.

Vermont July Report.—Dr. W. Scott Nay, Secretary of the Vermont State Board of Medical Registration, reports the written examination held at Burlington, July 10-12, 1906. The number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 33, all of whom passed. The following colleges were represented:

PASSED.	Year. Grad.	Per Cent.
College.		
University of Louisville	(1905)	75.2
Boston University	(1906)	77.4
Albany Med. Coll.	(1905)	84.
Dartmouth Med. Coll.	(1904)	79.2

University of Vermont (1904) 77.1; (1905) 79; (1906) 75.1, 76.1, 76.1, 76.6, 76.7, 76.9, 77.1, 77.4, 77.6, 77.9, 78.1, 78.1, 78.1, 78.8, 79, 79.1, 79.1, 79.2, 79.2, 80.2, 80.7, 80.7, 81.2, 81.6, 81.7, 81.8, 84.3.

The following questions were asked:

PRACTICE OF MEDICINE.

1. Give the differential diagnosis between chronic bronchitis, tuberculosis of the lungs, pneumonia and pleurisy. 2. Give the etiology, symptoms and proper treatment of measles. 3. Describe urticaria. What are its most common causes and what treatment would you recommend for it? 4. What are the symptoms and general course of aneurism of the aorta and how would you treat a case? 5. Describe the life history of *Tænia solium*, the symptoms which it causes and its proper treatment. 6. Describe the etiology and pathology of cirrhosis of the liver. 7. Describe the pathology and symptoms of Addison's disease. 8. How would you distinguish pyelitis from cystitis? Give treatment for each. 9. Give causes, symptoms and proper treatment for malarial fever. 10. Give etiology, symptoms and prophylaxis of yellow fever.

SURGERY.

1. Name the principal bacteria and the surgical diseases produced by each. 2. Name the varieties of wounds and seven methods of stopping hemorrhage. 3. Name the usual methods of healing in wounds, and describe how it is accomplished. 4. Describe thrombosis and embolism, how caused, symptoms and treatment. 5. Give cause, symptoms and treatment of caries and necrosis. 6. Give causes and treatment of ununited fracture. 7. Describe in detail the method of ligating arteries. 8. Differentiate between coma from injury and apoplexy, uremia, epilepsy, diabetes, opium poisoning and alcoholic intoxication. 9. Diagnose a case of hip joint disease. 10. Describe in detail removal of the breast.

LEGAL MEDICINE.

1. Define syncope, asphyxia and coma. Give examples. 2. What is the difference between a medicine and a poison? 3. Explain the terms mania, monomania, dementia and idiocy. 4. On what would you base your opinion that a child had been born alive at term? 5. Give causes of death during the birth of a child.

THERAPEUTICS.

1. For what particular symptoms would you prescribe the following? Grindelia robusta, hyoscyamus hydrastis, gelsemium, cactus, arom. sulph. ac., veratrum viride, croton oil. 2. Write a prescription for each of the following conditions: Hematuria, cystitis, impetigo, herpes zoster, capillary bronchitis, acute rheumatism. 3. What drugs would be indicated in the treatment of erysipelas? 4. How would you manage a case of belladonna poisoning? 5. Give the external and internal uses of (a) silver nitrate, (b) carbolic acid.

CHEMISTRY.

1. (a) What is meant by the term molecule? (b) What is believed in regard to movements of molecules in gases, liquids, solids? 2. In case of defective drainage causing sickness, how would you detect such in water? State your tests. 3. How would you test a suspected mixture for arsenic? State the test you would use and the reactions. What other substances might be mistaken for arsenic and how can they be distinguished? 4. (a) What is the difference between a ferrous and a ferric salt? (b) Illustrate the difference between symbol, formula, equation. What information does each convey? 5. (a) Name the organic and inorganic constituents of urine. (b) Name the abnormal constituents of urine and give tests for same.

OBSTETRICS.

1. Give symptoms of pregnancy. 2. Give treatment of abortion. 3. Describe a normal labor. 4. Give mechanism of face presentation. 5. How and for what reasons would you perform version? 6. What complications may result from infection after delivery?

7. What is eclampsia? 8. What is inertia and cause of same? 9. Describe application of forceps to a head presentation. 10 What is treatment of postpartum hemorrhage?

GYNECOLOGY.

1. Give symptoms indicative of pelvic disease. 2. Treatment of ovaritis. 3. Differentiate uterine fibroid and ovarian cyst. 4. Give treatment of vaginal catarrh. 5. What is amenorrhea and when does it occur?

PHYSIOLOGY.

1. Give the classifications of efferent nerves. 2. Give the properties and functions of the medulla oblongata. 3. State the physiologic properties of nerve cells. 4. Give the action of the salivary secretion on starch. 5. Give the products of intestinal digestion and state the disposition made of these products. 6. Describe the plasma of the blood and give its constituents. 7. Describe the changes of the blood during coagulation. 8. Name the most frequent abnormal constituents of urine and way of detection in three of them. 9. Describe the lymphatic system, giving its functions. 10. How is the temperature of the body kept at the standard?

HYGIENE.

1. Name the contagious diseases for which you would quarantine. 2. Give the rules and time for which you would quarantine four of them. 3. State the duties and obligations of the family physician in regard to the hygiene of school children. 4. Tell how you would build and furnish a school house, observing hygienic rules. 5. How would you manage a case of phthisis pulmonalis to avoid danger to other members of the family?

THEORY AND PATHOLOGY.

1. Name five self-limited diseases. 2. Why does not every person exposed to an infectious disease take it? 3. Explain the more recent theories of immunity. 4. What are phagocytes and what is their rôle in the prevention of disease? 5. What are the symptoms and what are the pathologic changes in progressive bulbar paralysis?

ANATOMY.

1. Name and describe four classes of tissue which enter into the formation of the human body. 2. Describe the bony pelvis and state what bounds the cavity of the pelvis above. 3. Give three general classifications of joints. Describe the elbow joint. 4. Name the muscles of the abdomen and give the origin, insertion, nerve supply and action of any one of them. 5. Name the cavities, openings and valves of the heart. 6. Give the collateral circulation when the brachial artery has been ligated just below its profunda branches. 7. Describe Scarpa's triangle and name its contents. 8. Name the organs and parts of organs located in the left hypochondriac region. 9. Give the columns, fissures and blood supply of the spinal cord. 10 What abdominal viscera and parts of viscera have no peritoneal investment?

BACTERIOLOGY.

1. What are the general requisites for a nutrient media? 2. Name and describe the most common pyogenic organism. 3. How would you prove a certain specific micro-organism to be the cause of a certain specific disease? 4. What is there peculiar in the behavior of the tubercle bacillus toward staining solutions? 5. What micro-organisms would you expect to find in the pus from a psoas abscess?

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulæ and outlines of treatment are answered in these columns.]

Cystitis.

In the treatment of cystitis, Yeo in *Clin. Ther.* recommends the following combinations:

℞ Terebinthinæ (pure)
Ext. gentianæ, āā ..... gr. xlv 3

M. Ft. pil No. xxx. Sig.: One pill three times a day, followed by two tablespoonfuls of lime water in milk.

Or,

℞ Acidi benzoici ..... gr. lxxv 5
Syr. aurantii ..... ℥v 20
Aquæ dest., q. s. ad ..... f. ℥x 300

M. Ft. mistura. Sig.: One tablespoonful every two hours in water.

Or,

℞ Sodii bicarb. ..... gr. lxxv 5
Decoctio uvæ ursi ..... ℥vi 180

M. Ft. mistura. Sig.: One tablespoonful every two hours.

If there is a marked catarrhal condition and the urine is of foul odor the following combination is advised:

℞ Resorcini ..... gr. xlv-lxx 3-4 65
Aquæ dest. ..... f. ℥iii 90

M. Sig.: To be mixed with an equal quantity of warm water and used as a solution for washing out the bladder in chronic cystitis.

Or,

℞ Acidi borici ..... ℥ss 15
Glycerini ..... ℥i 30
Aquæ dest., q. s. ad ..... f. ℥v 150

M. Sig.: To be mixed with an equal quantity of warm water and used as an irrigation.

Or,

℞ Aluminis
Zinci sulph.
Acidi carbolici, āā ..... ℥ss 15
Aquæ dest., q. s. ad ..... f. ℥x 300

M. Ft. lotio. Sig.: To be diluted ten times with sterilized water and about one pint of the mixture to be injected daily into the bladder.

Internally the following combinations are recommended:

℞ Buchu fol. ..... ℥ii 8
Uvæ ursi fol. ..... ℥ii 8
Aquæ ferventis ..... f. ℥vi 180

Macerate for two hours, strain, and add:

Liquoris potassæ ..... f. ℥i 4
Tinct. cinnamomii,
Tinct. hyoscyami, āā ..... f. ℥iii 12

M. Ft. mistura. Sig.: Two tablespoonfuls three times a day.

In case of phosphatic deposits in the urine the following combination is recommended:

℞ Acidi hydrochlor. fort. ..... m. iii 20
Aquæ dest. ..... f. ℥vi 180

M. Sig.: To be used as a wash for the bladder.

Psoriasis.

According to Hyde, arsenic ranks first in the treatment of psoriasis and he further emphasizes that whatever failures are experienced with this preparation in the treatment of other diseases its value must not be ignored in this one. It is unsuited, however, for all cases of psoriasis occurring with acute symtoms, such as subjective sensations and unusually vivid redness of the patches. The preparation usually employed is Fowler's solution, beginning with small doses and gradually increasing the dose to the proper proportions, at the same time keeping the patient under constant observation during its administration.

The arsenate of sodium or the arsenate of iron are sometimes recommended.

In the gouty cases Hyde advises the following combination:

℞ Potassii acetatis ..... ℥i 30
Spts. etheris nitrosi ..... f. ℥ss 15
Vini colchici ..... f. ℥ii 8
Syr. aurantii ..... f. ℥iss 45

M. Sig.: One dessertspoonful after meals in water.

Locally for the eruption, green soap in combination with tar and alcohol serves a good purpose combined as follows:

℞ Tinct. saponis viridis ..... ℥ii 60
Olei picis ..... f. ℥i 30
Alcoholis ..... f. ℥ii 60

M. Sig.: Apply locally.

Or,

℞ Saponis viridis ..... ℥iv 120
Olei rusci
Glycerini, āā ..... f. ℥i 30
Olei rosmarini ..... ℥iss 6
Spts. vini rectif. ..... f. Oss 250

M. Ft. linimentum. Sig.: Apply locally.

Or,

℞ Sulphuris sublim.
Olei rusci, āā ..... ℥ss 15
Saponis viridis
Adipis, āā ..... ℥i 30
Cretæ prep. ..... gr. 1 3 20

M. Ft. unguentum. Sig.: To be applied locally.

Or,

℞ Olei picis ..... ℥i 4
Vel
Olei rusci
Olei amygdali ..... ℥i 30

M. Sig.: Apply locally.

The local treatment of the scalp or the face with some of the foregoing combinations can not be carried out because of their disagreeable odor, but as a substitute he recommends the following:

℞ Hydrarg. chloridi mitis ..... gr. xxx 2
Lanolini ..... ℥i 30

M. Ft. unguentum. Sig.: Apply locally.

Or,

R. Tinct. benzoini 3ss 2
Lanolini ..... ʒi 30
M. Ft. unguentum. Sig.: Apply locally.

Pyelitis.

In cases of chronic pyelitis the following is recommended internally:

R. Quininæ tannatis ..... gr. xv 1
Sacchari albi ..... gr. xxx 2
M. Ft. cap. No. vi. Sig.: One capsule three times a day.

In calculous pyelitis due to lime or uric acid deposits the following may be used:

R. Sodii phos. ..... ʒi 30
Sodii bicarb ..... ʒii 60
Lithii carb. ..... ʒiiss 10
M. Ft. pulvis. Sig.: One teaspoonful in a pint of water three times a day.

In the treatment of uric acid calculi Yeo states that excellent results have been obtained by the administration of large doses of glycerin by the mouth, the good effects being due to changes produced in the urine.

The amount given is one to four ounces dissolved in an equal quantity of water taken between meals every two or three days for a period of several days. Some authors state that it renders the specific gravity such as to produce a change in the position of the calculi in the pelvis of the kidney.

Malaria.

In the administration of quinin hypodermically, quinin hydrochlorate is to be preferred, according to J. C. Wilson in his "Text-Book of Applied Therapeutics," as follows:

R. Quin. hydrochlor. ..... gr. lxxv 5
Aquæ dest. ..... f. ʒiiss 10
M. Sig.: Fifteen drops at one injection.

Or the following solution after Kobner's formula:

R. Quin. hydrochlor. ..... gr. viii-xv 56-1
Glycerini
Aquæ dest., āā ..... ʒss 2
M. Sig.: To be injected at one time, luke warm.

By some authorities the following combination is recommended:

R. Antipyrini ..... gr. vi 30
Quin. hydrochlor. ..... gr. xv 1
Aquæ dest. ..... f. ʒss 2
M. Sig.: To be injected at one dose.

Wilson recommends the chlorhydrosulphate as follows:

R. Quin. chlorhydrosulphatis ..... gr. lxxv 5
Aquæ dest. ..... f. ʒiiss 10
M. Sig.: Fifteen drops at one injection.

Quinin sulphate may be given hypodermically when combined with tartaric acid, as follows:

R. Quin. sulphatis ..... gr. xv. 1
Acidi tartarici ..... gr. viii 50
Aquæ dest. ..... f. ʒiiss 10
M. Sig.: To be given hypodermically.

By the mouth the following combinations are recommended in the *Pract. Med. Series:*

R. Quin. sulph. vel hydrochlor
Salol, āā ..... gr. xl 2 65
Phenacetini ..... gr. xxx 2
M. Ft. cap. No. xii. Sig.: One capsule every three hours.

Or,

R. Quin. sulphatis ..... gr. lxxx 5
Acidi hydrochlor. dil.
Tinct. zingiberis
Tinct. opii camphor. āā ..... f. ʒii 8
Syr. limonis ..... f. ʒii 60
Aquæ, q. s. ad ..... f. ʒiii 90
M. Sig.: One tablespoonful every four hours in water.

To correct the anemia following an attack of malaria the following is advised:

R. Quin. sulphatis ..... ʒiss 6
Ferri reducti ..... ʒi 4
Ext. nucis vomicæ ..... gr. viii 50
Acidi arsenosi ..... gr. i 06
Ext. colocynth. co. ..... gr. x 65
Podophyllini ..... gr. ii 12
M. Ft. cap. No. lx. Sig.: One pill after each meal.

Medicolegal

Aggravation of Effect of Injury By Use of Opiates.

The Supreme Court of North Dakota holds, in the case of Pyke vs. City of Jamestown, that the aggravation of the consequences of a personal injury by the use of opiates, taken under the direction of a reputable physician to alleviate the pain resulting from the injury, is not a defensive fact in an action to recover damages for the injury. The necessity for the use of opiates arises in such case from the negligent act causing the injury, and not from any negligence of the person injured. And this, the court suggests, would be true even if the physician erred in his treatment.

Liability of Board of Health Members From Smallpox Hospital.

The Supreme Judicial Court of Massachusetts says, in Barry vs. Smith and others, an action against the members of a city board of health for damages from a smallpox hospital located adjoining property of the plaintiff's, that if a rope was put around his driveway and that brought within the hospital grounds by the defendants, or by persons in their presence and under their direction, the defendants were liable. As members of the board of health they had no right to take the plaintiff's land without action under the statute. It is not true that a public officer is exempt from liability for all acts done in his official capacity. However, the court assumes that, if a case of smallpox had broken out in the plaintiff's house, his driveway could have been roped off in regulating the disease on his premises as a menace to the public. Moreover, in fixing on the location of the hospital the defendants were exercising a discretion which the Legislature had required them to exercise as public officers, and their decision on the question, being quasi judicial or quasi legislative, was final, and it was not competent to make them liable for a mistake or for negligence in the exercise of it, that is, in the location of the hospital. Where a plaintiff suffers a loss of rents from the location of a smallpox hospital in the neighborhood on land leased for the purpose, but where the hospital is not improperly conducted, he has no remedy. But if the defendants were personally negligent in the maintenance of the hospital, and in consequence of that negligence the hospital became a nuisance to the plaintiff's adjoining houses and land, the defendants were liable, provided their negligence was a misfeasance, as distinguished from a nonfeasance. If they were guilty of a nonfeasance only, no action would lie against them. It followed that the plaintiff did not make out a case against the board of health by showing that the hospital was a nuisance and that at the time it was under their control. The plaintiff must go one step further to charge the defendants with the nuisance, and prove that it was caused by acts of misfeasance on the part of the defendants, or by an act or acts done by another in the personal presence which would thus be the acts of the defendants.

What Constitutes "Sunstroke."

The Supreme Court of Kansas says, in Continental Co. vs. Johnson, that the latter party, by whom the action was brought, was a fluewelder, and while engaged in that occupation was overcome by heat from the forge or furnace near which he worked, and, in consequence thereof, became ill and suffered the loss of nearly a year's time. He alleged that his loss was due to sunstroke within the provision of an accident policy that loss of time due to sunstroke should be deemed to be due to external, violent, and purely accidental causes, and should entitle the insured to full benefits according to the terms of the policy. The company, on the other hand, insisted that the word "sunstroke" as used in the policy referred only to an effect produced by the heat rays of the sun.

After reviewing the definitions and statements of a number of dictionaries and encyclopedias, medical dictionaries and works, the court says that it seems clear from them not merely that it is permissible to apply the word "sunstroke"

to a condition produced by artificial heat, but that it accords with the best usage to do so; that such condition is comprehended within the ordinary meaning of the word wherever it is used with care and precision, whether in technical scientific treatises or in works designed for the general reader. Where the word is used carelessly or ignorantly it may well be supposed that reference is had to any temporary discomfort resulting from exposure to the direct action of the sun. So in Insurance Co. vs. Trefz, 104 U. S. 197, it was held that the statement of a witness that he had had an attack of sunstroke was not necessarily to be taken as an admission that his ailment was in fact a real case of sunstroke, properly so called. But in the drawing of an instrument of the character and importance of an insurance policy the presumption should be that language is selected to express with entire accuracy and correctness the agreements of the contracting parties. And in the present case the word "sunstroke" might be deemed to describe, or at least to be inclusive of, the condition properly called by that name, whether occasioned by solar or artificial heat, unless some special reason existed for giving it a different meaning.

There may be an apparent incongruity in calling that "sunstroke" which has no relation to any effect produced by the sun, but this is only to say that the word is not happily formed to suggest the idea it is employed to express. Etymology is not always a safe guide to the meaning of a term. It is no more imperative that "sunstroke" shall always mean a disorder caused by the sun than that "lunacy shall denote only an aberration due to the influence of the moon. The history of the word "sunstroke" seems to be that it was coined to describe any suddenly perceived ill-effects of sun heat; as observation disclosed that a definite morbid condition ordinarily accompanied or followed such an incident the word was applied to that condition in the belief that it was peculiar to cases having that origin; as advancing medical science revealed that such condition was a distinct disease and might and often did result from artificial as well as from solar heat, the physicians, instead of at once inventing a new and more appropriate name, broadened the application of the old one and their example was naturally and properly followed by others until the usage became general. Later, as a visible mark of the advanced learning on the subject, a more suitable term was originated to describe the disorder—"heat stroke," the growing employment of which may in time restore "sunstroke" to its primitive meaning.

It was argued, not without plausibility, that the language of the policy pointed to a conception of sunstroke as something of sudden and unexpected occurrence, more or less in the nature of an accident, and that this conception was only appropriate to an attack brought on by exposure to the sun's rays. But prostration resulting from heat emanating from a furnace may be as swift in its development and as startling in its effects as though it was occasioned by hot and humid weather. In each case there would be present some of the features of an accidental injury but neither would justify a recovery on an ordinary accident policy. In the only reported cases bearing on the subject (Dozier vs. Fidelity & Casualty Co. [U. S. Circuit Court], 46 Fed. Rep. 446, and Sinclair vs. Maritime Pass. Assur. Co. [English], 3 El. & El. 478), in disposing of the contention that the holder of an ordinary policy insuring him against accidental injuries is entitled to recover for disability due to sunstroke, it is held that sunstroke is not an accident but a disease. These cases are frequently referred to by the medical and legal writers and seem to be regarded as definitely settling the proposition to which they are directed. The discussion in the case first named tends to support the view that sunstroke may be caused by artificial heat, and the decision is cited as having that effect in Peterson & Haines' Text-Book of Legal Medicine and Toxicology, p. 491.

Wherefore, the court holds that the word "sunstroke," when used in an insurance policy in describing one of the risks covered, should not be interpreted as applying only to an effect produced by the heat of the sun, unless the context or other special considerations require it. The term explained denotes a condition produced by any heat, solar or artificial. Nor does the court think that the fact that in this case there was overexertion affected the liability of the company.

Current Medical Literature

Medical Record, New York.

August 25.

1 *Functional Derangement of the Ears and Upper Air Tract in the Insane. W. S. Bryant, New York.
2 *Therapeutic Value of Artificial Localized Hyperemia in the Treatment of Ambulatory or Dispensary Cases. E. Beer, New York.
3 Surgical Diagnosis in Emergency Work. W. E. Hartshorn, New Haven, Conn.
4 Pneumothorax. J. N. Hall, Denver.
5 Urethral Diverticula and Cul-de-Sacs. N. E. Aronstam, Detroit.
6 *New Management of Occipito-posterior Positions of the Fetal Head. M. C. O'Brien, New York.

1. **Ears and Upper Air Tract in Sane.**—Bryant shows the relation between insanity and functional derangement of the ear and upper air tract. Only three individuals out of 161 examined had perfectly normal hearing. Although the number of cases is not large enough to prove any point conclusively, they suggest that nasopharyngeal or aural diseases are far more prevalent among the insane than among normal individuals; and that sometimes hallucinations of hearing appear to be excited by subjective sensations of hearing; and that aprosectic psychosis is sometimes aggravated, if not excited by intranasal pressure. The prognosis for psychical improvement from treatment of the nasopharynx when nasal complications are a disturbing factor; and of the ear, when active aural disease is a disturbing factor, is good. The prognosis is bad when there are chronic inactive aural conditions.

2. **Artificial Localized Hyperemia in Treatment of Ambulatory or Dispensary Cases.**—Beer treated 90 odd cases in this way, including the following conditions and diseases: Prevention of infection, infected wounds and cellulitis of fingers or hand, abscesses, furuncles, carbuncles, acute suppurative adenitis, acute bursitis, contusions and more chronic conditions. Many of the cases in which constriction hyperemia was used were chronic.

6. **Management of Occipito-Posterior Positions of Fetal Head.**—O'Brien introduces either hand under the occiput, with or without anesthesia, grasps it firmly, having separated the middle and ring fingers to steady the neck, and makes counter-pressure on the fundus, thus bringing the fetal body and head into one solid mass. With assistance he slowly rotates the mother to the genupectoral posture. This manipulation brings the occiput to the anterior position without traumatism to mother or child. Labor proceeds as when the patient is placed in the genupectoral position for prolapsed cord, or in the lateral obstetrical posture of the English school. O'Brien calls attention to the awkward movement which occurs when the patient's knee passes over the accoucheur, for the crux of the manipulation is to keep the head fixed steadily with the body curled on it.

New York Medical Journal.

August 25.

7 *Stereoskiagraphy. G. H. Stover, Denver, Colo.
8 Unusual Success from Iridotomy in Eyes Practically Blind from Iridocyclitis and Complicated Cataract. W. C. Posey, Philadelphia.
9 Résumé of Recent Work in Clinical Pathology of the Blood. T. W. Hastings, New York.
10 *Sternomastoid Breathing. R. H. Chase, Philadelphia.
11 *Contribution to the Study of the Spanemic Heart. C. R. Jackson, New York.
12 *Strychnin as a Remedy in Pulmonary Tuberculosis. W. F. Milroy, Omaha, Neb.
13 A Model for a New Ophthalmotrope: The Gonioscope. Some Phases of Ocular Mortality. D. K. Saute, Washington, D. C.
14 *Improved Method of Ring Tests in Uranalysis. V. C. Pedersen, New York.

7. **Stereoskiagraphy.**—Stover describes stereoskiagraphy as consisting in making a pair of skiagrams of the part under examination, in such a way that by means of a special stereoscope the observer obtains from this pair of stereograms a view conveying perfect perspective. He considers the stereoskiagram to be a most useful means of Roentgen diagnosis.

10. **Sternomastoid Breathing.**—Chase presents a study of the dying state. Sternomastoid breathing consists of an up-and-down rocking movement of the head due to the breathing. He claims that sternomastoid breathing is a reliable sign of approaching death, and one which may serve the purpose of the physician in forming an estimate of the length of time the patient may live, without depending on signs of less

value; its onset indicates that death is probably very close at hand, generally within half an hour; it is a definite symptom on which the physician may predicate his instructions or advice; it is a sign to mark the time when the family may be summoned to the bedside, or one which may regulate the other details of the death chamber.

11. **Spanemic Heart.**—Jackson defines the spanemic heart as one which, by reason of deficient nutrition of muscle, is dilated or dilatable. He believes it to be of three varieties: First, the heart, which is insufficiently nourished on account of general anemia. Second, the heart insufficiently nourished indirectly because of more or less persistent vasomotor failure, the blood being normal. Third, the insufficiently nourished heart from a combination of blood disease and vasomotor instability. He cites four cases in point.

12. **Strychnin in Pulmonary Tuberculosis.**—Milroy is of the opinion that strychnin should be used in pulmonary tuberculosis whenever the fresh-air treatment is not available, and that it may be used to advantage in conjunction with the fresh-air treatment.

14. **Improved Method of Ring Tests in Uranalysis.**—Pedersen's method is an improvement on the Boston method. The only required implement is a medicine tube about six inches long, three-eighths of an inch in diameter, tapered gradually to a rather small opening, and provided with a rubber bulb at the head, which it is well to secure at the neck of the tube with a rubber band or a tape, firmly in place to insure airtightness. The technic is very simple, and comprises the following steps: While the air is forced and kept back from the tube by compressing the bulb the tip of the tube is immersed in the urine, which is sucked into the tube to its full capacity by allowing the bulb to expand. About half the capacity of the tube is now evacuated by again squeezing the bulb, which is maintained in a semiflat state after the drop of urine on the surface of the tube is wiped off against the neck of the urine bottle, the tip of the tube is dipped into the nitric acid. The bulb is then allowed to expand, thus sucking the acid into the tube, replacing the amount of urine evacuated by the foregoing step and thereby giving the two layers of fluid in the tube ready for the reaction—the upper, urine and the lower, acid. The tube is now stood aside in any convenient receptacle. At the juncture of the fluids the ring forms, which may be negative, doubtful, faint or positive. When the reaction is negative or positive no other step is necessary. When the ring is doubtful or faint the following detail proves the condition instantly: The tube is held over the acid bottle and the bulb slowly and uniformly compressed so that the faint ring or the supposed ring is made to descend unbroken into the taper of the tube. As the ring thus descends it does not change its thickness if the doubtful reaction is really negative, but if only faint, though really positive, the thickness of the ring at once is reduplicated and the observation of the reaction made certain.

The Boston Medical and Surgical Journal.

August 23.

15 Relations of the Gastrointestinal Tract to Nervous and Mental Diseases. R. C. Kemp, New York.
16 *Gastric Ulcer and Cancer. C. Graham, Rochester, Minn.
17 Advantages of Separate Organizations for Training Schools and Hospitals. A. Worcester, Waltham, Mass.
18 Case of Primary Erysipelas of Pharynx. H. G. Langworthy, Dubuque, Iowa.

16. **Gastric Ulcer and Cancer.**—Graham distinguishes about four stages in gastric ulcer development and would expect cancer when it did develop to appear in the third or fourth stage or often to be the fourth stage. In the first stage of ulcer there is unusually good appetite with nutrition at par or even excessive; pain occurs from two to five hours after meals, when the stomach is empty or emptying itself. The second stage may be established some months later, following several intermissions with recurrences, each increasing more or less in severity; appetite is good, though perhaps not above normal; less satisfaction follows the hearty meal; pain is severe and comes sooner after food; distress or discomfort may be present even when so-called pain is absent. In the third stage, desire for food may remain, it may be fair or decreasing, but the patient is afraid to eat because of distress, pain, gas, vomiting, sour eructations, bloating or sour, burning stomach; there is but short food relief, if any; perhaps there are obstructive symptoms; loss of flesh is usual, and even cachexia may be present. Graham says that in the undoubted fourth stage (cancerous) the whole picture intensifies, "and he who runs may read." In Graham's series of cases the males and females ran in proportion of 4 to 1 and ranged in age from 29 to 75 years, the average being a little over 50. About three-fourths of the whole number presented themselves for amelioration of symptoms that had been pressing for one year or less. Twenty-three of the number who presented long histories complained of malignant symptoms only a year or less, the average in this number being a trifle more than five months. Pain was rather constant. In 8 the histories did not state either way, one patient said no pain, the remainder (73) openly declared for pain, most of them complaining rather bitterly. Vomiting was not recorded in 11 histories, 3 patients stated no vomiting, while the great number (68) complained more or less severely. In 42 the lesion was situated at the pylorus or lesser curvature, in 3 at the cardia. The location was not recorded in many of the inoperable cases, but the symptoms, for which the operation was undertaken, most often spoke for pyloric end or lesser curvature location.

Of the whole number operated on 67 patients had test meals and other routine stomach examinations, chemical and physical. Tumor was present 27 times and doubtful in 3 more. Dilation was present 54 and obstruction 36 times. In 32, free hydrochloric acid was present ranging from 1 to 50 acidity; combined in 32; lactic, 42; fatty, 19; both hydrochloric and lactic acids were found 13 times. Blood was found often. There were 39 cases in which a portion of the stomach was removed and examined. In 21 cases, 54 per cent., the pathologic evidence was good that cancer had developed on an old ulcer base; in 10 cases, 25.60 per cent., the evidence was fair that the same was true, while 8 gave no evidence of preceding ulcer irritation. Then in over three-fourths of the cases, 79.5 per cent., the pathologic evidence was good or fair that ulcer was first as a cause. Twenty-one of the 39 had long histories, 14 of which have good pathologic evidence, 6 patients whose histories were long, gave evidence considered only fair, 7 patients whose histories ranged from two months to two years gave good pathologic evidence, and 4, whose histories covered from one and one-half months to two years, offered fair proof. Histories and pathologic findings ran together both positive in over half the cases, 54 per cent.

St. Louis Medical Review.

August 18.

19 Inspection of Public School Children. H. J. Scherck, St. Louis.
20 Origin and Heredity of Matter (to be continued). J. Wright, New York.

American Journal of Medical Sciences, Philadelphia.

August.

21 *Vascular Tension in Chronic Illness. H. A. Hare, Philadelphia
22 *Therapeutic Use of Tuberculin Combined with Sanitarium Treatment of Tuberculosis. E. L. Trudeau, Saranac Lake, N. Y.
23 The Opsonic Index (Wright and Douglas) in Tuberculosis. N. B. Potter, N. E. Ditman, and E. B. Bradley, New York.
24 *Technic of the Tuberculo-Opsonic Test. H. M. Kinghorn and D. C. Twitchell, Saranac Lake, N. Y.
25 A Suggestion in the Treatment of Hemoptysis. L. Brown, Saranac Lake, N. Y.
26 *A New Intestinal Parasite of Man; Parameba Hominis. C. F. Craig, U. S. Army.
27 Acetone Bodies; Their Occurrence and Significance in Diabetes and Other Conditions. T. S. Hart, New York.
28 Relations of Chronic Villous Polyarthritis to the Dumb-Bell Shaped Bacilli. M. Schueller, Berlin.
29 *Peptic Ulcer of the Esophagus. W. Tileston, Boston.
30 *Primary Sarcoma of the Adrenal Gland. I. W. Blackburn, Washington, D. C.
31 *Case of Narcolepsy, from a Specific Infection Transmitted Through Five Generations. A. N. Blodgett, Boston.
32 *An Unusual Case of Antitoxin Rash. R. L. Wilbur, Stanford University, Cal.

21. **Vascular Tension in Chronic Illness.**—Hare emphasizes the importance of studying the vascular state and the degree of the blood pressure in respect to the diagnosis, prognosis and treatment in several states of disease because many medical men are still impressed with the idea that a tired heart should be stimulated to greater effort when in reality it should be given as much rest as possible by diminishing its burden

He says that it is quite remarkable how competent the heart is to attend to its functions if the physician is able to overcome vascular relaxation. In his experience there are only three drugs that are useful for this purpose, atropin, adrenalin and digitalis. If the physician will direct his treatment to the vessels, the heart will often be able to care for itself. The heart should be stimulated to increased effort when the real object is to decrease its burden and to diminish the toxemia which is destroying its function. If the high tension is due chiefly to spasm, nitroglycerin will do good but it will fail to a great extent if the condition is due to fibrosis. The combined effect of rest, massage and iodids, even when fibrosis is well developed, not only will often produce excellent results in that the state of a tired heart has been proved, but also results in a marked diminution of arterial tension, partly by a cardiac and partly by a vascular influence.

22 and 24. See abstracts in THE JOURNAL, June 23, 1906, page 1964.

26. **New Intestinal Parasite of Man.**—The organism described by Craig was observed in the feces of 6 natives who were patients in the hospital at the time. In 5 of the cases, the only symptom of importance was diarrhea, the stools being of watery consistency, and containing in three instances a small amount of blood and mucus. In none of these cases was *Entamœba dysenteriæ* present. The 6 patients were suffering from a very severe attack of acute amebic dysentery, and the new ameba was found in small numbers in conjunction with immense numbers of *Entamœbæ dysenteriæ*. In 1 case *Trichomonas intestinalis* was present. Craig has only observed the organism in natives of the Philippine Islands, although he has looked very carefully for it in Americans, some of whom lived in the tropics for some time. The parasite described passes through an amebic and a flagellate stage of development. Craig suggests for it the name *Paramœba eilhardia.*

29. **Peptic Ulcer of the Esophagus.**—Tileston reports three cases, all of them terminating fatally. In the first case, that of a woman, aged 58, the ulcer was situated 3 cm. above the cardiac opening of the stomach. The ulcer did not manifest itself until it perforated. In the second case, a man, aged 59, the lower end of the esophagus for a distance of 11 cm. was denuded of mucous membrane, except for a few small islands. The ulceration was very shallow, not involving the muscularity. In the third case, a woman, aged 37, there were several ulcers in the esophagus, and also a chronic ulcer of the stomach which perforated, causing the fatal peritonitis.

30. **Primary Sarcoma of Adrenal Gland.**—Blackburn reports another case of primary sarcoma of the adrenal gland which did not produce any symptoms of Addison's disease. The existence of the tumor was not suspected until after the death of the patient. The symptoms present suggested carcinoma of the stomach though the more characteristic symptoms were absent. Both adrenal glands were sarcomatous.

31. **Narcolepsy.**—In the case reported by Blodgett the causative action of a specific infected agent is believed to have been the source of the disorder. The grandfather of the patient was supposed to have had syphilis. Each member of the next generation bore some inherited constitutional taint, but in each individual the particular form of stigma varied from that of another. The patient who forms the subject of Blodgett's communication is of the third generation, a woman, 65 years of age. She began to notice her infirmity at about 22 years when the attacks appeared in the form of an irresistible inclination to fall asleep at all times of the day without cause or apparent provocation by surrounding circumstances; otherwise she seemed to be in her usual health. She falls into a perfectly natural slumber, wakens readily, and is apparently unaware that she has fallen asleep. There is no history of acute rheumatism or endocarditis, nor of any other infective or constitutional disease. The thyroid is neither hypertrophied nor absent.

32. **Unusual Antitoxin Rash.**—The patient, whose case is reported by Wilbur, gave a history of occasional urticaria following the ingestion of strawberries or shell-fish following the administration of a prophylactic injection of 1,000 units of diphtheria antitoxin; she complained of a feeling of fullness of the head. The face was flushed; there came total hyperemia of the skin with itching and the development of immense white weals. The lips, tongue and eyelids began to swell; there was dyspnea; the pulse at first rapid, became imperceptible at the wrist, although the apex beat was vigorous. These symptoms gradually became worse, but eventually, under stimulating treatment, they subsided.

American Journal of Obstetrics, New York.

August, 1906.

33 Processes of Reproduction. F. R. Oastler, New York.
34 *Causes of Sterility. G. G. Ward, Jr., New York.
35 Sterility and its Surgical Treatment. D. Bissell, New York.
36 Functions of the Uterosacral and Round Ligaments. J. W. Bovée, Washington, D. C.
37 *Case of Meningocele of Unusual Size. G. M. Boyd, Philadelphia.
38 Adenocarcinoma of the Abdominal Wall, Developing Subsequent to the Removal of Benign Ovarian Neoplasms. E. A. Schumann, Germantown, Pa.
39 Life and Work of Dr. J. Marion-Sims. W. D. Ward, Rochester, N. Y.
40 *Symphysectomy with the Report of Five Operations and a Brief Consideration of its Advantages and its Disadvantages. L. M. Allen, Baltimore.
41 *Review of Fourteen Cesarean Sections Successfully Performed. G. M. Boyd, Philadelphia.
42 Surgical Treatment of Puerperal Infection. R. W. Stewart, Cincinnati, Ohio.
43 *Typhoid Fever Occurring During Pregnancy. C. Foulkrod, Philadelphia.
44 Significance of Uterine Hemorrhages of the Menopause. G. P. Murray, New York.

34. **Causes of Sterility.**—Ward concludes that as conception is dependent on the four essential factors of healthy spermatozoa, normal ova, the union of the same, and the proper implantation of the fertilized egg, sterility is most frequently dependent on acquired pathologic lesions, and congenital defects, which defects and lesions produce sterility by interfering with one or more of the above-mentioned essentials. A large number of cases of acquired sterility are due to pathologic lesions producing such destructive changes in the tubes and ovaries as mechanically to prevent the union of the spermatozoa with the ova. Gonorrhea is the most frequent cause of such destructive lesions. Acquired sterility in a large number of instances, is due to chronic endometritis, which produces such pathologic changes in the endometrium as to prevent the proper implantation of the impregnated ovum. The cases of sterility associated with flexions, displacements, subinvolution, fibroids and other neoplasms, are due not to these conditions per se, but to the associated chronic endometritis which prevents proper implantation. A fruitful case of an unhealthy endometrium and of tubal disease, which either singly or together tend to prevent union of the male and female elements and proper implantation, is the chronic inflammation and congestion of the uterus and adnexa incident to subinvolution or sepsis which so frequently follows abortion, especially if treated by the expectant plan. We must be impressed by the great importance of gonorrhea in its relation to sterility, when we appreciate the fact that it not only renders the woman sterile, but is responsible nearly always for sterility in the male, gonorrhea thus being an etiologic factor in about 70 per cent. of the cases. As in nearly all instances of sterility in the woman due to gonorrhea, the infection has been innocently acquired by the wife, from her husband, the fault lies with the man in more than two-thirds of all cases.

37. **Meningocele of Unusual Size.**—In the case cited by Boyd the tumor occupied the occipital region, just below the posterior fontanelle; it measured 6 inches in its long diameter, and about 5 inches in the transverse diameter. The diameter of the opening in the occipital bone measured about 1 inch. The radical cure by amputation of the sac was performed without anesthesia. An incision through the skin at the neck of the tumor was made, and the sac exposed. The intracranial fluid was then slowly withdrawn. The infant showed marked evidences of shock, became pale, and for a time ceased to breathe. These symptoms, however, soon disappeared. The hernial sac was then dissected away, and closed in with a continuous suture of catgut. The skin was sutured with the same material. The infant made a rapid recovery from the operation. It gained in weight, and seemed to be well for three months, when it began to develop acute hydrocephalus. As the head increased in size, the body lost in weight.

The infant is now six months old, is poorly nourished, and has the characteristic separation of the sutures and the large bulging fontanelles.

40. **Symphyseotomy.**—In certain cases in which Cesarean section is contraindicated or for certain reasons might not be considered safe, Allen believes that symphyseotomy might be the means of saving the life of the child. Such an example would occur in the case of a pelvis contracted at the outlet (funnel-shaped pelvis), where the head had been forced into and fixed tightly in the brim, but could not be forced through. In such a case Cesarean section would be contraindicated, as a dead child would usually be the result, whereas symphyseotomy would usually give a good result to both mother and child. Also in the case of an impacted mentoposterior variety of face presentation, where flexion of the head or podalic version was impossible, symphyseotomy might be performed. In case of limited assistants and facilities and unfavorable surroundings, symphyseotomy will undoubtedly give better results than Cesarean section. If it has been definitely decided that a living child can not be delivered *per vias naturales*, Cesarean section should be the operation of election, believing that in the long run the best results to both mother and child can be obtained from that operation.

41. **Successful Cesarean Sections.**—Boyd reports two cases and reviews 12 cases reported previously. The indications for operation were the following: Flat, rachitic pelvis, with uterine myomata; scolio-rachitic pelvis; coxalgic pelvis; general contracted pelvis; obliquely contracted pelvis; rachitic pelvis; general contracted pelvis with exostosis over promontory sacrum; labor obstructed by anterior fixation of the uterus.

43. **Typhoid Fever Complicating Pregnancy.**—Foulkrod reports four cases of pregnancy complicated by typhoid and 1 case of pregnancy occurring during convalescence from a severe attack of typhoid fever. Foulkrod asks whether there is something generative by the pregnant woman which in a certain measure protects her from the more virulent attack of the toxins of typhoid fever, and that the course of the typhoid during pregnancy is undoubtedly modifying should it occur at such a time when the serum or cells have been charged with immunizing bodies.

Annals of Surgery, Philadelphia.

August.

45 The Use of the Masland Saw for Opening the Cranial Vault. H. C. Masland, Philadelphia.
46 *Use of the Temporal Fascia to Cover in Cranial Defects. C. Beck, New York.
47 Acute Septic Infection of the Throat and Neck; Ludwig's Angina. G. G. Davis, Philadelphia.
48 *Total Laryngectomy for Carcinoma. A. H. Bogart, Brooklyn, N. Y.
49 *Treatment of Diffuse Suppurative Peritonitis, following Appendicitis. L. W. Hotchkiss, New York.
50 *Review of Fifteen Hundred Operations on the Gall Bladder and Bile Passages with Especial Reference to the Mortality. W. J. Mayo, Rochester, Minn.
51 Solitary Abscess of the Liver. C. A. Elsberg, New York.
52 *Treatment of Gastric and Duodenal Ulcers and Benign Obstructions of the Pylorus. A. Maclaren, St. Paul, Minn.
53 *Volvulus of the Small Intestine in Typhoid Fever, Simulating Perforation. J. B. Roberts, Philadelphia.
54 *Myofibroma of the Large Intestine. W. L. Estes, South Bethlehem, Pa.
55 Operative Treatment of Cancer of the Large Intestine, Causing Dangerous Intestinal Obstruction. H. W. Cushing, Boston.
56 Individual Excision and Suture in Operating for the Removal of Hemorrhoids. L. S. Pilcher, Brooklyn, N. Y.
57 Treatment of Ectopia Vesicæ. F. Trendelenburg, Leipzig, Germany.
58 *Congenital Protrusion of Heart, Stomach and Spleen. C. H. Wintsch, Newark, N. J.
59 Chewing-Gum Nucleus of Vesical Calculus. E. B. Kenner, Galveston, Texas.
60 Dislocation of the Metatarsal Bones. L. W. Ely, New York.

46. **Temporal Fascia to Cover Cranial Defects.**—Beck refers to another possible method of covering over defects of the cranium which meets indications not met by other methods in use. He makes use of the strong fibrous sheaf of the temporal fascia inasmuch as this shows no marked tendency toward the formation of adhesions. In the case reported, the defect in the skull was about 3 inches long and 1 inch wide at its greatest diameter. There was a total absence of bone substance. This was 9 months after the original injury. Operation was undertaken mainly for the relief of pressure symptoms caused by extensive scar formation. An incision was carried around the temporal muscle down to the bone. Then this flap and its periosteum was loosened, care being taken not to tear the connecting link of periosteum which was kept as close to the bone suture as possible. Beck then folded over the entire flap at the lower edge of the defect and covered the gap with it. At the opposite end he chiseled off enough bone to enable him to make use of a small amount of dura to which he attached the aponeurotic end with thin catgut sutures. This aponeurosis was in direct contact with the brain, while the periosteum was on top. The skin surfaces were united. Up to the present time, six months after the operation, everything has gone well.

48. **Total Laryngectomy for Cancer.**—Bogart reports the case of a man, aged 46, who had an extensive carcinoma of the right vocal cord. The larynx was totally removed, four months ago, adopting the method advocated by Keen. The patient made a complete operative recovery.

49. **Treatment of Suppurative Peritonitis Following Appendicitis.**—That the peritoneal drain can be eliminated as a factor of importance in the treatment of diffuse suppurative peritonitis Hotchkiss believes has been shown by the outcome in 28 patients operated on since 1903. The McBurney muscle splint with or without the Weir extension to the posterior sheet of the rectus has generally been found sufficient for the necessary manipulations. As little ether as possible was administered, and every effort was made to complete all peritoneal work with as much speed and as little traumatism as possible. The appendix was systematically searched for and removed with as little disturbance to the intestines as need be. After its removal and the cleansing of the appendiceal site, the pelvis and lower abdomen were rapidly washed out with the Blake tube or the jacketted glass return-flow canula. In many cases the peritoneum was closed without attempting to remove the saline solution which had not run out. Drainage of the external wound down to the peritoneum was generally employed, from the fact that the wound was usually infected and needed it. Gastric lavage was given before the patient left the table, and, as a rule, an ounce or two of saturated solution of Epsom salts was introduced through the tube and left in the stomach. Morphin, as far as possible, was not given and the rectal tube with saline irrigation of the lower bowel was used generally at intervals of from six to eight hours for the first two days. If vomiting occurred the stomach was washed. The use of saline irrigations to the peritoneum through the small lateral incision, does not consume much time, and seems by diluting the remaining fluids to hasten their absorption, besides acting generally as any intravenous infusion would to hasten the removal of toxins by dilution besides stimulating the heart and circulation. Moreover, the actual ability of the peritoneum to cope with the inflammation seems to be increased and not hindered. In those cases in which the inflamed appendix is the cause of the peritonitis, the problem resolves itself into the rapid removal of the offending organ without evisceration, in all cases. The peritoneum has proven itself abundantly able to take care of the resulting inflammation, and drainage in the absence of local necrosis is often ill-advised and not based on sound physiology or mechanics. Gauze packing is not only unnecessary but frequently harmful, being probably responsible for increased mortality, not to speak of the incident damage to the endothelium, with the resulting adhesions.

50 and 52. See abstracts in THE JOURNAL, July 14, 1906, pages 146 and 147.

53. **Volvulus of Typhoid Intestine Simulating Perforation.**—In the case reported by Roberts the general symptoms of perforation were not present, but the pain, tenderness and rigidity seem to indicate some intra-abdominal lesion. On opening the abdomen neither serum nor pus were found. There was great difficulty in drawing up the cecal portion of the ileum, which seemed to be imprisoned in the pelvis and was collapsed. The ileum above this portion was moderately distended and freely movable. The appendix was short and bound firmly to the cecum by a web-like attachment. It was not swollen or

inflamed, and no concretion could be felt within it. Examination of about 2 feet of the ileum did not reveal any perforation or discoloration of the serosa to indicate the presence of internal ulceration. The pain and rigidity of the abdomen disappeared after the operation and the patient went through the remainder of the typhoid without abdominal symptoms other than such occasional pain that might be seen in ordinary cases. Consideration of this case seems to show that there was either a volvulus causing constriction of the lower portion of the ileum, or a mild appendicitis due probably to a typhoid inflammation of the mucous membrane. Because of the critical condition of the patient from typhoid fever, the absence of definite symptoms of appendicitis and the possibility of the condition of the appendix being congenital, the appendix was not removed. Roberts concludes that the symptoms were due to a sudden twist of the ileum, which was finally disentangled, when he turned the coils over and over in his endeavor to bring the cecal end of the small intestine up from the pelvis, in which it was imprisoned.

54. See abstract in THE JOURNAL, June 30, 1906, page 2016.

58. **Congenital Protrusion of Heart, Stomach and Spleen.**—Wintsch reports the case of full-term living celosomus. He has not found a similar case reported. There was complete protrusion of the heart, stomach and spleen. Labor seemed perfectly normal. The child weighed 7 pounds. It defecated and urinated normally. It became very cyanotic at times and the cyanosis was aggravated when pressing on the heart with the hand. The baby lived 2 days and 3 hours. It was fed by mouth with water and milk from the breast of the mother, which it retained. Just before death the child vomited a greenish fluid and bled from the mouth.

Southern California Practitioner, Los Angeles.

August.

61 The Early Diagnosis and the Prognosis of Pulmonary Tuberculosis. S. A. Knopf, New York.
62 Stricture of the Urethra. G. Macgowan, Los Angeles.
63 Albuminuria in Pregnancy. F. W. Thomas, Claremont.
64 Climate of Hawaii. E. S. Goodhue, Holualoa, Hawaii.
65 Obesity. P. H. Sunde, Los Angeles.
66 Mastoiditis—Some Practical Points. H. Hastings, Los Angeles.
67 Massage—A Change Needed in Our Attitude Toward Its Practice. J. T. Rankin, Los Angeles.

Iowa Medical Journal, Des Moines.

August 15.

68 Report of Chairman of Section of State Medicine. C. T. Lesan, Mt. Ayr.
69 Sanitary and Hygienic Inspection of Schools. L. A. Thomas, Red Oak.
70 How Shall the Laity be Educated on Venereal Diseases? G. N. Ryan, Des Moines.
71 Pure Milk. G. H. Sumner, Waterloo.
72 Value of the Glandular Extracts. M. M. Jones, Ames.
73 Treatment of Acute Middle-Ear Suppuration. P. R. Wood, Marshalltown.
74 Medical and Surgical Progress. G. Cullen, Des Moines.
75 Case of Tetanus. W. R. Brock, Sheldon.

Journal of the Arkansas Medical Society, Little Rock.

August 15.

76 Degeneracy and Social Disease. T. J. Garner, Washington, Ark.
77 Some Severe Complications of Influenza. B. G. Wood, Cominto.
78 The Race Question from a Medical Standpoint. H. T. Scott.
79 Tuberculosis. G. E. Penn, Hot Springs.
80 Medical Legislation. O. L. Williamson, Marianna.
81 Modern Views of Neurasthenia and Its Treatment. J. Punton, Kansas City, Mo.
82 When to Begin to Treat Syphilis. J. C. Minor, Hot Springs.

Colorado Medicine, Denver.

August.

83 The X-Ray as a Means of Thoracic Diagnosis. D. P. Mayhew, Colorado Springs.
84 Use of the X-Ray in the Diagnosis of Pulmonary Diseases. S. E. Solly, Colorado Springs.
85 Four Cases of Spotted Fever Occurring in Colorado. J. M. Braden, Carbondale.
86 Fresh Air and Rest in the Treatment of Tuberculosis. G. R. Pogue, Greeley.
87 Pelvic Girdle vs. Abdominal Bandage. C. D. Spivak, Denver.

Denver Medical Times.

August.

88 Treatment of Constipation. G. Law, Greeley.
89 Treatment of Chronic Constipation. M. J. Krohn, Denver.
90 Id. J. D. Crisp, Denver.
91 Id. F. G. Byles, Denver.
92 Id. F. E. Prewitt, Denver.
93 Id. W. C. K. Berlin, Denver.
94 Acute Tonsilitis. D. S. Neuman, Denver.

Utah Medical Journal.

August.

95 Active Principle Therapy, or the Need of a Revival of Therapeutics. R. J. Smith, Smithfield, Utah.
96 Should the Physician be Interested in Politics? J. E. Scallon, Salt Lake City.

New York State Journal of Medicine.

August.

97 Conditions within the Appendix Causative of its Inflammation. A. E. Isaacs, New York.
98 Value of Education and Treatment as Safeguards in Venereal Infection Through Marriage. J. A. Fordyce, New York.
99 Should Not Safeguards from Venereal Disease be Thrown Around Marriage? J. A. Wyeth, New York.
100 Legal Measures to Prevent Venereal Diseases. A. N. Taylor, New York.
101 Rôle of Pure Cow's Milk in Infant Feeding. A Jacobi, New York.
102 Echinococcus Cyst of the Liver. R. S. Fowler, Brooklyn, N. Y.
103 History of the Medical Society of the State of New York (continued). J. J. Walsh, New York.

Cleveland Medical Journal.

August.

104 Native Doctors of Burmah. J. B. Stewart, Cleveland.
105 Vesical Hyperesthesia. C. G. Foote, Cleveland.
106 Examination of 538 School Children of the East Cleveland Schools. L. K. Baker, Cleveland.
107 History and Value of Massage and Exercise. B. Anderson.

Western Medical Review, Lincoln, Neb.

August.

108 Strychnin as a Remedy in Pulmonary Tuberculosis. W. F. Milroy, Omaha.
109 Lymphatic Glands of the Neck. A. C. Stokes, Omaha.
110 Treatment of Epilepsy. F. E. Osborne, Beatrice.
111 Is Internal Medicine a Failure? W. H. Wilson, Table Rock.

Bulletin of the Johns Hopkins Hospital, Baltimore.

August.

112 Address at the Formal Opening of the Laboratories of the Rockefeller Institute for Medical Research on May 11, 1906. W. H. Welch, Baltimore.
113 Teaching of Pathologic Physiology. W. G. McCallum, Baltimore
114 Phlegmonous Enteritis. W. G. MacCallum, Baltimore.
115 Multiple Cavernous Hemangiomata of the Intestine. W. G. MacCallum, Baltimore.
116 Mechanical Effects of Experimental Mitral Stenosis and Insufficiency. W. G. MacCallum and R. D. McClure, Baltimore.
117 Acute Hemorrhagic Pancreatitis Following Obstruction of the Bile Papilla. C. H. Bunting, Baltimore.
118 So-called Spontaneous Focal Myocarditis and the Occurrence of Calcification of the Degenerate Muscle Fibers. E. K. Cullen, Baltimore.
119 Disseminated Tuberculosis in Relation to the Thoracic Duct and Vascular Tubercles. G. H. Whipple, Baltimore.
120 Necrosis of Epithelium in the Kidney in Infections and Intoxications. J. H. Hewitt, Baltimore.
121 The Growth of Lymphatics in Granulation Tissue. T. H. Coffin, Baltimore.
122 Growth of Carcinoma Cells Within the Muscle Fibers in Carcinomatous Metastases to Voluntary Muscle. G. H. White, Philadelphia.
123 Typhoid Nodular Colitis. G. H. Whipple, Baltimore.

Medical Sentinel, Portland, Ore.

August.

124 Value of Roentgen Rays in Therapeutics. L. H. Hamilton, Portland.
125 Drainage. J. D. Sternberg, Portland.
126 *Rocky Mountain or Spotted Fever. H. N. Mayo, Salt Lake City, Utah.
127 Necessity of State and National Control of Tuberculosis. J. P. Tamiesie, Hillsboro, Ore.

126. This article appeared in THE JOURNAL, July 7, 1906, page 36.

The Therapeutic Gazette, Detroit, Mich.

August 15.

128 Overtreatment of Syphilis. G. H. Fox, New York.
129 Treatment of Syphilis. M. H. Hartzell, Philadelphia.
130 Id. W. A. Hardaway, St. Louis, Mo.
131 Id. E. Martin, Philadelphia.
132 Id. G. MacGowan, Los Angeles.
133 Diarrhea in Infancy and Early Life. I. H. Hance, Lakewood, N. J.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

August 11.

1 Relations of Medical Men to Their Patients. R. Maclaren.
2 *Present Position of Prostatic Surgery. J. H. Nicoll.
3 *Series of Cases in which Collections of Stones Formed in the Prostatic Urethra. C. A. Morton.
4 *The Vesical Sphincter and the Mechanism of the Closure of the Bladder. C. Leedham-Green.
5 The Modern Mastoid Operation. A. Bronner.
6 Microscopic Changes in the Nervous System in a Case of Chronic Dourine. F. W. Mott.
7 Case of Obscure Intracranial Tumor; Meningeal Sarcoma with Extension to Fourth Ventricle. G. H. G. Davie.

2. **Position of Prostatic Surgery.**—Extended experience has confirmed Nicoll's opinion that the first step in prostatectomy should be the opening of the bladder by the suprapubic route. This permits the completion of the diagnosis and the complete bi-manual examination of the prostate, and also a decision whether the urethra and mucous floor of the bladder are to be preserved intact or not. By whichever method of operating, vesicle or submucous, the surgeon, once the prostatic capsule has been opened, requires no other instrument than his finger, provided he is prepared to bring away, in whole or in part, the mucous urethra. Nicoll claims that in operating by the submucous method it is possible in 70 per cent. of the cases to enucleate the prostate by the finger alone without damage to the urethra or vesicle wall. He has never seen fatal hemorrhage following prostatectomy by any method. He claims that prostatectomy by enucleation constitutes the cure for senile hypertrophy of the organ and its effects. The cases in which he has performed enucleation are according to three series: The first series comprise 48 cases, with 4 deaths, a little over 8 per cent. The second series comprise 25 cases, with 5 deaths, or 20 per cent. Two of the 5 deaths occurred in cases in which Nicoll had previously, on account of the patient's feeble and unsound condition, discouraged the idea of operation. The third series showed 38 cases, with 2 deaths, or about 5.5 per cent.

3. **Calculi in Prostatic Urethra.**—Morton reports three cases in all of which the presence of the stone was associated with a stricture of the urethra. In none of the cases, however, was the stricture in front of the prostatectomy urethra. In one case it was scrotal, in another at the junction of scrotum and penis, and in the third near the meatus. Neither were the strictures very tight. In the first case 7 stones were removed, the largest weighing 208 grains. Only 1 stone was found in the second case, and a number of fragments, weighing 95 grains, in the third case.

4. **Mechanism of Vesical Sphincter.**—Green injected the bladder of certain men and youths with a suspension of bismuth, and then radiographed the pelvis. In every case he found that whether the bladder was fully distended or not, the outline of the organ was oval and not pear-shaped, and the urethra was sharply cut off from the bladder without a suggestion of a bladder neck. He concludes, as a result of his experiment, that there are reasons for believing that the sphincter of the bladder (the internal prostatic sphincter) plays a far more important part than Finger and Guyon credit it with, and that under ordinary circumstances it is by this muscle that the bladder is closed whether distended or not. There is evidence, he thinks, that when the internal sphincter does yield, it does so, not because it is overcome by the mechanical pressure of the urine in the bladder, but because its muscular fibers relax as a vital act in response to a nerve impulse preliminary to the evacuation of the urine. The normal act of micturition would appear to be as follows: As the bladder becomes distended with urine the vesical nerves are stimulated and evoke stronger and stronger contractions of the detrusor muscles, giving rise to the desire for micturition. To withstand the increased pressure of the urine the tone of the internal unstriped muscular sphincter is increased, and, if necessary, even the accessory voluntary urethral muscles are called into play. When a favorable opportunity for micturition occurs the internal sphincter is voluntarily relaxed, together with the rest of the unstriped muscular tissue of the posterior urethra, and the urine is expelled by the contraction of the detrusors.

The Lancet, London.

August 11.

8 The Hands of Surgeons and Assistants in Operations. A. E. J. Barker.
9 Internal Secretion and the Ductless Glands. S. Vincent.
10 Cure of Chronic Suppuration of the Middle Ear without Removal of the Drum or Ossicles or the Loss of Hearing. C. J. Heath.
11 A Form of Amblyopia in Young Children Consequent on Inherited Syphilis. S. Stephenson.
12 Auriculoventricular Bundle of the Human Heart. A. Keith and M. W. Flack.
13 *Successful Case of Splenectomy for Rupture of the Spleen. G. S. Simpson.
14 *Unusual Forms of Anemia in Childhood. T. R. C. Whipham and A. N. Leathem.
15 *Plastic Surgery of the Renal Pelvis. J. W. T. Walker.

13. **Rupture of Spleen.**—In addition to reporting one case of rupture of the spleen, Simpson discusses 70 cases recorded in the literature since 1891. He advises immediate operation in all cases as soon as the diagnosis is made, even though there may not be much hope of saving the patient's life. In the 70 cases referred to, 42 patients were operated on; of these, 27 lived and 15 died, a mortality of 36 per cent. All those not operated on died. The causes of failure after operation were peritonitis, rupture of other viscera, especially the left kidney; injuries of the left pleura, other injuries, such as fracture of the base of the skull, and operation performed too late. The majority of patients show no abnormal effect except a transient anemia and leucocytosis, which swings back to normal in about a month, and an enlargement of the lymph glands, most often the left axillary and inguinal.

14. **Unusual Forms of Anemia in Childhood.**—Whipham and Leathem report three cases. The first 2 support their views as to the existence of that acute lymphemia without marked leucocytosis. The third case is an anomalous one and no diagnosis was made. The patient presented many points suggestive of pernicious anemia, but it was impossible to confirm this diagnosis.

15. **Plastic Surgery of Renal Pelvis.**—Walker reports the case of a young woman who had a movable tumor on the left side of the abdomen. It had existed about 7 months and followed the sudden attack of pain in that region, the result of carrying a heavy box downstairs. Four similar attacks of pain occurred later, some the result of exertion, others not. There were no urinary symptoms. The mass seemed to swing around a pedicle fixed above the umbilicus. Examination proved absolutely negative as to determining the nature of the tumor. A diagnosis of movable kidney without hydronephrosis was made. On cutting down on the kidney it was found to be attached to a large bladder-like cyst which was recognized as an enormously distended pelvis. The ureter below the mass showed no signs of dilatation. Walker excised a large triangular portion of the kidney pelvis in order to reduce its capacity and fix the kidney by a combination of decortication with non-decortication. The operation employed is described in full.

The Practitioner, London.

August.

16 Postpartum Hemorrhage. E. S. Bishop.
17 *Seven Cases of Hernia Treated by the Implantation of a Prepared Filigree of Silver Wire. L. McGavin.
18 *Intestinal Obstruction in Children. A. Edmunds.
19 Chorea Gravidarum. H. French and H. T. Hicks.
20 *Surgical Aspects of Colitis. P. L. Mummery.
21 *Syncytioma Malignum. J. T. Hewetson.
22 Two Cases of Branchial Fistula. W. Downie.

17. **Silver Filigree in Hernia.**—McGavin has employed the method described by Bartlett in 7 cases. One of these was a postoperative ventral hernia, 1 a case of extensive separation of the recti muscles and enteroptosis, 1 an umbilical hernia, and 4 were inguinal hernia. The outcome in all the cases was a successful one. McGavin calls attention to certain points which he believes are essential, such as the size of the filigree and its situation; the most suitable spacing of the loops, the removal of a filigree, and the filigree as a time saver.

18. **Intestinal Obstruction in Children.**—Edmunds reports a case of intestinal obstruction in a female child, aged 3 years and 4 months. The abdomen was opened through the right rectus muscle. On turning up the omentum a tag was found adherent to the tip of a short lateral protest of the small intestine. On one side of this the bowel was slightly distended and an obstruction could be demonstrated at the base of the process. The projecting portion of bowel was excised and showed that there was an acute kink of the intestine combined with great narrowing of the wound, forming a valve which presented a formidable obstacle to the passage of intestinal contents. The cut ends of the bowel were sutured together and the patient made a complete recovery.

20. **Surgical Aspects of Colitis.**—Mummery concludes that colitis should be looked on as a symptom rather than as a disease. A careful examination should be made, if possible, with the sigmoidoscope, and the cause of the colitis should be carefully determined before any treatment is adopted. If the

colitis is due to disease in some neighboring organ, such as the appendix, kidney, or gall bladder, this condition should be treated by operation. If the colitis is secondary to malignant disease in the bowel, operation at the earliest possible moment affords the only chance of cure, and an early diagnosis is here of the utmost importance. If it is due to some local lesion, such as tuberculosis or actinomycosis, it must be treated locally; if necessary, by operative means, such as colotomy or enteroanastomosis. True mucous colitis is best treated by von Noorden's method of dietary, combined, if necessary, with irrigation of the colon. In some very obstinate cases, and especially in cases of ulcerative colitis, a temporary cecotomy, or colotomy, or enteroanastomosis seems to be the only method of cure, but should not be adopted until a careful trial has been made of palliative treatment.

21. **Syncytioma Malignum.**—As the result of an instructive case which occurred in his practice, Hewetson concludes as follows: 1. Metrorrhagia, following abortion or labor, should call for more prompt investigation, especially in women under thirty. 2. Dilatation and curetting, in such circumstances, is an operation of considerable responsibility, in view of the possibility of malignant disease. 3. Sharp curettes are contraindicated in the parturient uterus, and when septic infections exist. 4. All such curettings should be submitted to an expert pathologist for microscopic examination. 5. Continued metrorrhagia, after such treatment, should be regarded as of serious import, and should call for fresh investigation and prompt radical measures.

Journal of Tropical Medicine, London.

August 1.

23 Studies in Plague. C. Terni.
24 Anatomy of the Biting Flies of the Genera Stomoxys and Glossina. G. M. Giles.

Glasgow Medical Journal.

August.

25 Certain Clinical Aspects of Arterial Disease. J. L. Steven.
26 Influence of the Acute Infections on the Arteries. J. M. Cowan.
27 Physiologic and Therapeutic Actions of High-Frequency Currents, with Illustrative Cases. J. R. Riddell.
28 Choroido-Retinitis of Obscure Etiology. E. Thomson.
29 Case of Otitic Extradural Abscess, Associated with Paralysis of Sixth Cranial Nerve and Double Optic Neuritis. J. S Barr.

Bulletin de l'Académie de Médecine, Paris.

30 (Year LXX, No. 27.) Hypertrophie compensatrice du péroné dans une luxation ancienne du tibia. Couteaud and Chauvel.
31 Luxation récidivante de l'épaule. Arthrotomie. Guerison. Id.
32 *Sur la typhlite muco-membraaeuse ou sableuse et l'appendicite.
33 (No. 28.) Organisation du service de la vaccination en Algérie. Kelsch.
34 *Traitement des opacités cornéennes par les agents physiques par M. le Dr. E. Sulzer. Chauvel.
35 Le paludisme à Madagascar. R. Blanchard.
36 (No. 30.) *Tumeurs cancéreuses et helminthes. E. Roux and A. Borrel.
37 L'assistance médicale en Indo-Chine. Kermorgant.
38 *Moustiquaire électrique. Chaulin and Blanchard.
39 Emigration et santé publique (public health). Chantemesse and Borrel.

32. **Discussion on Appendicitis.**—The rather sensational discussion of appendicitis and muco-membranous typhlitis which had continued through several meetings of the Académie was closed July 3. Among the latest speakers Blanchard announced his conviction that intestinal worms are frequently responsible for these morbid conditions. They induce minute lesions in the mucosa of the intestine, and especially in the appendix, and bacteria soon ensconce themselves in the nests thus provided for them. In case signs of the presence of helminths are discovered, treatment should aim to expel them, both as a preventive of appendicitis and as a cure of existing intestinal trouble above or below. He related a number of instances in which symptoms indicated appendicitis, but after evacuation of a number of worms all symptoms subsided. He considers it the physician's duty to examine the stools for traces of worms, and if eggs of the trichocephalus, ascaris or oxyuris are discovered he advises giving three 1 gm. doses of thymol at one hour intervals on three successive days. These doses are as effectual as larger ones, and are useful for the ascaris and the oxyuris, as well as the trichocephalus. It is of the utmost importance that the patient should refrain from ingestion of alcohol, oil or other substances capable of dissolving the thymol and freeing its toxic properties. Vegetables fertilized with human excreta are liable to prove a prolific source for infecting man with helminths, and Blanchard urged the absolute prohibition of manuring with human excrements.

34. **Treatment of Opacity of the Cornea by Physical Agents.**—Sulzer is connected with the de Rothschild Ophthalmic Foundation and has been much pleased with the results of treatment of opacity of the cornea with electrolysis, with or without phototherapy, or the latter alone and radiotherapy. His experience includes 34 cases. Benefit was derived in all but 6, vision increasing considerably. The cases of interstitial sclerosis were improved as well as the more superficial cicatrices. Applied directly on a superficial cicatrix the negative electrode, with a current of from 4 to 7 milliamperes, leads to the formation of gaseous bullæ which lift up the opaque patch from the underlying tissues. The consequence is the formation of a more translucent cicatrix, less white, less opaque, although the sclerosis may still persist. A much more intense reaction follows exposure of the eye to a bright light, rich in actinic rays, the application lasting from 20 to 90 seconds, repeated in eight or ten days. The results, Sulzer states, were particularly good in pronounced sclerosis, reducing the intraocular tension and favoring the absorption of effusion in the papilla. The only contraindication is a tendency to glaucoma. He has thus treated 24 patients, all but 4 under 20, with a single exposure for 6 eyes, 2 for 11, 3 for 17, and 4 or 5 for 2. In 14 cases the reaction to the light was very striking.

36. **Cancerous Tumors and Helminths.**—Borrel states that among the rats and mice kept at the Paris Institut Pasteur those inhabiting certain cages presented a very much larger proportion of spontaneous cancers than other animals, showing that there may be "cancer cages" as well as "cancer houses." The locality of the cancer also seemed to be decided by the special cage in which the animals were kept. One of these cages has already furnished more than 30 cases of spontaneous cancer. In the lungs of animals which had succumbed to these cancers, secondary tumors were found in the lungs with helminths in the adjoining lung tissue. One rat, succumbing to an epithelial cancerous tumor in the right kidney, was found to have cysts in the other kidney and the liver containing embryos of the *Tenia crassicola* of the cat. In another rat a large sarcoma of the liver was found surrounded by cysts exhibiting the same parasite. The sarcoma from this rat has been inoculated through three passages, suggesting that the cysticercus carries with it some virus yet unknown. This virus inoculated with the cells, in its passage from rat to rat, is capable, without any further intervention on the part of the helminth of propagating indefinitely the elements of the tumor. It is interesting further to note that in the two cases the cancer was of a different variety.

38. **Electric Mosquito Trap.**—Chaulin's apparatus is a sort of cylindrical lantern made of two large horizontal rings connected by vertical, parallel chains, rather close together, with a light inside. The electric current passes through the chains. Insects, especially mosquitoes, attracted by the light, can not pass between the chains without touching them in more than one place, thus closing the circuit and killing the insects by the charge of electricity that passes through them. Very little electricity is needed, a small storage battery taken temporarily from an automobile is ample for the purpose.

Presse Médicale, Paris.

40 (XIV, No. 56.) Organisation médicale et pathologie du Siam. E. Jeanselme.
41 Extraction des corps étrangers des bronches par la bronchoscopie (foreign bodies). Guisez.
42 L'indican et le scatol urinaires. G. Daremberg and T. Perroy.
43 (No. 57.) Certificats d'études médicales supérieures. F. de Lapersonne. See editorial, page 587.
44 *L'aphasie motrice. Sa localisation et sa physiologie pathologique. J. Dejerine.
45 (No. 59.) Purpura hémorragique et tuberculose. R. Bensaude and L. Rivet.
46 (No. 60.) Traitement des otites chroniques par la vaporisation tubo-tymphanique aux eaux sulfurées-sodiques thermales. E. Escat.
47 (No. 61.) Les 3 instituts Pasteur de l'Indo-Chine. C. Nicolle.
48 De la senilité (the senile brain). A. Létienne.
49 *Composition de la glace et congélation de l'eau (of water). P. Sacerdote.

44. **Marie's New Views of Motor Aphasia.**—Marie's views were reviewed in an editorial in THE JOURNAL, Aug. 11, 1906, page 436. Dejerine energetically combats them and presents arguments to show the fallacy which has misled Marie. Dejerine's experience with hundreds of cases during the last 25 years makes him take an opposite view, which he here presents in detail.

49. **Composition of Ice.**—Sacerdote has found that as water freezes slowly all the impurities are pushed away from the part first freezing. The center of a cake of artificial ice is generally opaque, while the part first frozen—the outside—is generally clear. Whatever the character of the water used, the water obtained by melting the outer, clear parts, is almost perfectly pure, while that from the central, opaque part contains the impurities. The bacteria do not escape this law, he adds, but will be found congregated in the central part of the cake.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

50 (XXXII, No. 28.) Ueber die Behandlung der Nieren-Tuberculose (of kidneys). O. Zuckerkandl. Clinical lecture.
51 *Weitere Erfahrungen mit der Rückenmarks-Narkose (spinal anesthesia). R. Freund.
52 Automobile Fracture.—Ueber eine typische Verletzung der Chauffeure. R. Muhsam. See THE JOURNAL, xlii, p. 1054.
53 Mechanism of Fracture of Metatarsal Bone.—Welches ist der gefährliche Moment für die Entstehung eines Mittelfussknochenbruches beim Gehen. A. Kirchner.
54 Ueber Befunde von Spirochæte pallida in den Nerven des Präputiums bei syphilitischer Initialsklerose. S. Ehrmann.
55 Bemerkungen zu dem Aufsatz von A. Kowarski in No. 25: Eine vereinfachte Methode zur quantitativen Bestimmung der Harn-Säure im Harn (test for uric acid). J. Ruhemann.
56 Ueber den Wert plastisch wirkender Röntgenbilder. M. Cohn.

51. **Spinal Anesthesia.**—Freund reports experiences with 209 cases in which operations were performed under spinal anesthesia at Veit's clinic. This method of anesthesia has been proved to possess so many advantages and so few drawbacks that he thinks it has already won an assured position and possibly may take first rank among all methods of anesthesia, even for major operations. He used rather more of the anesthetic than others advise, and was particular to refrain from testing the patient's sensibility, believing that complete quiet is the best preliminary to an operation. If the analgesia is defective this is never due to the lack of receptivity on the part of the patient, he says, but to mechanical and anatomic conditions. The preferred point for the injection is as high as possible, at least between the second and third lumbar vertebræ, and exactly in the median line. The pelvis was always elevated immediately after the injection to an angle of 20 or 25 degrees from the horizontal, and kept in this position during the 20 minutes required for the local disinfection. When the laparotomy is commenced the pelvis is raised still higher. The anesthesia does not extend unnecessarily high with this technic. The extent of the anesthetized area can be further controlled by allowing more or less of the cerebrospinal fluid to escape. Four c.c. is the rule, and this is generally enough for gynecologic operations. There were 104 laparotomies and the spinal anesthesia was successful in 93; 30 Alexander-Adams operations, with success in 26; 16 vaginal operations, with successful anesthesia in 10; 48 vaginal operations, with anesthesia in 43—a total of successful spinal anesthesias in 181, that is, in 86.6 per cent. of 209 major gynecologic operations on women between the ages of 18 and 73. The remaining 13.4 per cent. required a little chloroform before the operation could be completed. One patient, an asthmatic woman of 73, with myoma of the uterus, 8 minutes after the injection, while the parts were being disinfected, the pelvis raised a little, rapidly died after vomiting and sudden arrest of the respiration. This fatality occurred in the early experience at the clinic, before the present technic was adopted, which ensures that the cannula does not enter too far. The guide is left in the cannula only until the skin and the first layer of the soft parts are passed. Then the guide is withdrawn and the cannula is cautiously pushed in until the cerebrospinal fluid flows out freely, and no farther. This ensures that the tip of the cannula does not go beyond the arachnoid space where are the sensory roots. These precautions had not been dreamed of at the time of the fatality reported, and it is highly probable that the cannula had been inserted too far, bringing the anesthetic to the motor roots, and paralyzing the higher vital centers when the pelvis was elevated. The few slight by-effects noted are growing constantly less with improved technic. Vomiting was observed in about a fourth of all the cases, but it is less and more transient than that liable to follow chloroform. More disagreeable is the brief paralysis of the anal sphincter with sudden passage of stools occasionally occurring after a vaginal operation. This he learned to obviate by the preliminary insertion of an opium suppository. He concludes with the statement that spinal anesthesia in its present form is eminently practicable.

Hospitalstidende, Copenhagen.

Last indexed page 727.

57 (XLIX, No. 21.) Et Tilfælde af diffust kavernøst Angiom paa venstre Under-Extremitet, i venstre Reggio glutæa, perinæalis og pudendalis. H. Heide.
58 (Nos. 22-25.) Studier over den saakaldte typiske Radius-Fraktur. K. Poulsen. (Continued.)
59 *Undersøgelser over primær Tuberkulose i Fordøjelseskanalen (in digestive tract). J. Ipsen.
60 *Bemærkninger om Forfrysning af det subkutane Fedtvæv. P. Koefoed.

59. **Primary Tuberculosis of Digestive Tract.**—This communication from the Copenhagen Institute of Pathologic Anatomy continues Fibiger's research on primary tuberculosis in the digestive tract. He found tuberculous lesions in 116 out of 213 cadavers, and in 13 they were primary in the digestive tract or connected glands. Among the 79 children, 25 were tuberculous, and in 4 of these the lesions were primary in the digestive tract. Ipsen has continued this research, the total material now comprising 600 autopsies. Tuberculous lesions were found in 311, and they were evidently primary in the digestive tract in 5.17 per cent. of the total cadavers, and in 10 per cent. of the tuberculous, that is, in 31 cadavers. Out of the 187 children's cadavers, 58 proved to be tuberculous, and the lesions were primary in the digestive tract in 10, that is, in 17 per cent. These figures are manifestly too low, as they do not include those in which the tubercle bacilli passed through the intestinal walls without leaving any traces. The circumstances indicated infection from cow's milk in some of the cases, and from association with consumptives in others.

60. **Freezing of Subcutaneous Adipose Tissue.**—Koefoed describes a case in which the excessive use of an ice bag for threatened appendicitis froze the subcutaneous fat. The patient was an extremely nervous young woman, and when first seen in consultation she was somewhat feverish and agitated. She complained of pains in the ileocecal region, where there were indications of the erythem that follows freezing. The deep subcutaneous fat was infiltrated and hard as from a typical phlegmon. An incision failed to reveal any pus, but the subcutaneous tissue was hard and grayish in color, and it did not bleed. The skin bled normally during the incision. Only the lowest vascularized stratum presented a normal aspect. In the course of 2 weeks everything had returned to normal, without any suppuration or sloughing. Koefoed had a similar experience with another patient, whose family physician had likewise applied the traditional ice bag. The changes in the subcutaneous tissue persisted for 2 and 3 weeks in these cases after the fat had been so thoroughly frozen. This possibly occurs oftener than is generally supposed, and may be the unrecognized cause of certain complications.

Hygiea, Stockholm.

Last indexed XLVI, page 511.

61 (LXVIII, No. 9.) *Om difteridöden (death in diphtheria). T. Fischer.
62 *When to Operate in Case of Uterine Myoma.—När bör ett uterusmyom opereras? E. Essen-Möller.
63 (No. 10.) *Om peritoneal-dränage. F. Westermark.
64 383 bråckoperationer (herniotomies). O. Lundblad.
65 *Gastrointestinala rubbningar beroende på arterioskleros. E. E. Rodhe.
66 (No. 11.) *Operationer för nefrit. G. Ekehorn.
67 Ett anmärkningsvärdt fall af otogen pyemi. G. Nilson.
68 Letal gallgångsblödning framkallad af sten (fatal gallstone hemorrhagic affection). H. Allard.
69 Traumatisk Jacksons epilepsi. N. Bellander.
70 Tvenne fall af prolapsus mucosæ urethræ. K. Widerström.
71 Saw and Sinus Opener for Intranasal Operations.—Tvenne instrument för inre näsbehandling. S. Lindström.
72 Den tropiska splenomegaliens parasit. A. Prag.

73 (No. 12.) *Hygieniska inrättningars inverkan på halsotillståndet i städerna (influence of hygienic measures in cities). C. Lindman.
74 *Om Koch's gamla tuberkulin som terapeutiskt medel vid lungtuberkulos. J. Tillman.
75 Till operations-tekniken för anus præternaturalis. A. Reuterskiöld.
76 Boarding Out the Insane Under Administrative Control.—Om organiserad och under regelbunden sakkunnig kontroll stående familjevård för sinnessjuka och sinnesslöa. A Petren.

61. **Death in Diphtheria.**—Fischer has been studying the causes of death in 287 cases of fatal diphtheria. Only about 25 per cent. of the patients succumbed to general diphtheric intoxication, and a little less than 25 per cent. to tardy paralysis. All the others—more than 50 per cent.—died in consequence of pulmonary lesions. The latter was the cause of death in all the infants and in 83 of the 139 cases in children between 1 and 3, and in 16 of the 85 cases in children from 4 to 10, which included also 33 cases of fatal tardy paralysis. The 17 fatal cases of diphtheria in patients over 10 included 9 deaths from early general intoxication, 3 from tardy paralysis, and 3 from tardy sepsis. He remarks that far too little attention has been paid hitherto to secondary infection in diphtheria, and yet its importance as a factor in the fatal termination is emphasized by the above figures. Diphtheria antitoxin had been administered in every case. He is convinced that the only way to bring the diphtheria mortality actually under control is to supplement the diphtheria antitoxin with an effectual antistreptococcus and antistaphylococcus serum.

62. **When to Operate for Uterine Myoma.**—Essen-Möller's practice is never to operate so long as the myoma does not cause symptoms. But he keeps the patient under observation, and examines from time to time, ready to operate at the first indication of hemorrhage, rapid growth, or the like. He has applied these principles in 111 cases, with highly satisfactory results, as he describes in detail.

63. **Drainage After Laparotomies.**—Westermark relates his experiences with drainage as he applied it in 6 out of 272 abdominal operations. None of the rest had any drainage. He follows Mikulicz' technic for peritoneal drainage, and restricts its application exclusively to cases in which pus in the small pelvis has contaminated the field of operation, or when the virulence of the pus is unknown. Also when the intestines or bladder have been injured and pus is found, and also in all cases of lesions of the large intestine, even when there is no suppuration. He thinks that his results indicate the advantage of restricting drainage to these conditions.

65. **Gastrointestinal Disturbances Due to Arteriosclerosis.**—Rodhe describes a case of arteriosclerosis in a man of 65 in whom severe pains developed in the epigastric region, accompanied by palpitation of the heart and difficulty in breathing. A common cause for the heart and stomach troubles was suggested by the lack of any other symptoms from the digestive tract, and the absence of any signs of nervous or hysteric tendencies, but chiefly by the promptly successful result of treatment. No gastralgia of any other origin yields at once to heart tonics. Digitalis and potassium iodid were ordered in small doses, with a suitable diet. In another case a man of 65 with generalized arteriosclerosis complained of attacks of pain in the abdomen at times during the last few years. As in the first case the absence of signs of neurasthenia or hysteria and of digestive disturbances, and the prompt benefit from heart tonics, are presumptive evidence in favor of the theory that the painful attacks are due to the existing arteriosclerosis. The cases in which the attacks of pain occur alone, that is, unaccompanied by angina pectoris, are the most important from the differential standpoint. If the true cause is not recognized, the patient loses the benefit of appropriate treatment. The most characteristic feature is the strict localization of the pain in the epigastrium, appearing in persons of 40 or over. The pain is a sharp, stabbing or burning sensation, lasting generally only for a few minutes. It radiates sometimes to the liver, shoulder or arms, and ptyalism may be observed with a cold sweat and semi-unconsciousness. Between the attacks there is no pain, at least in the milder cases; in others there may be a dull, continuous ache. There are generally no other disturbances from the digestive tract, although sometimes constipation, diarrhea, meteorism, etc., may be observed. Other morbid processes are liable to occur in the digestive organs aside from those due to the arteriosclerosis, of course, and the latter may induce thrombosis, or even actual ulcer formation. The attacks in Rodhe's cases followed unusual physical exertion. Buch has reported a case in which the attacks were liable to come on when the patient lay down. Emotions and excesses are also liable to bring on an attack. On the other hand, the kind of food has no influence. The shortness of the painful attack, the radiation of the pains, and the occasional alternation with angina pectoris confirm the diagnosis. The same causes that elicit angina pectoris are noted in the history of these attacks. Pressure on the epigastrium sometimes induces pain similar to that of the typical attack. The pure arteriosclerotic gastralgia subsides or vanishes altogether under diuretics, digitalis or strophanthus. The syndrome may simulate ulcer, nervous dyspepsia or even cholelithiasis, until death in syncope occurs, and autopsy reveals the unsuspected sclerosis of the coronary, stomach, or intestinal arteries. Jaworsky has published reports of 4 such cases in which the patients suddenly succumbed to this form of arteriosclerosis while under treatment at Carlsbad for nervous dyspepsia.

66. **Operations for Nephritis.**—Ekehorn gives the details of 2 cases of acute infectious nephritis and of 4 of renal hematuria in chronic nephritis. He also analyzes an extensive list of articles on this subject. His conclusions are that hemorrhage from the kidney is not the prerogative of any special form of nephritis. It is much more likely to be the work of the toxic influences causing the nephritis rather than of the nephritis itself. He operated in all his cases and the operation always put an end to the hemorrhage. He discusses the question of why excessive pressure in the kidney induces hemorrhage, while nothing analogous occurs in other organs, and why an incision, relieving the pressure, arrests the hemorrhage. The purely mechanical influence of the altered position, adhesion to adjacent organs, pressure, etc., must not be underestimated, he remarks. Rovsing seems to be the only one who has given due consideration to the mechanical factor in renal hematuria.

73. **Influence of Modern Hygiene on Cities.**—Lindman gives a number of diagrams showing and comparing the amount and nature of the sickness and the mortality in 10 cities in Sweden during the last 30 years. The general mortality has dropped from 250 to 152 per 10,000 inhabitants. The decline has been most pronounced in the acute infectious diseases and diarrhea, also in nervous and pulmonary affections, while on the other hand the number of deaths from affections of the heart and vascular systems have increased, and the number of fatal puerperal affections averages nearly the same.

74. **Old Tuberculin as a Therapeutic Measure.**—Tillman relates his experience with 7 cases of phthisis in which he used Koch's old tuberculin. It was given in a subcutaneous, infrascapular injection, twice a week, and the patients afterward lay down for a time. They had all had a preceding course of sanatorium treatment and the disease was of 2 years' standing at least. Some were in an advanced stage, but improvement was manifest in all, especially after suspension for a time.

Gazzetta degli Ospedali, Milan.

Last indexed page 614.

77 (XXVII, No. 51.) *Aspergillosi polmonare acuta primitiva. U. Baccarani.
78 Sindrome labio-glosso-faringea per lesione del solo emisfero sinistro. A. D'Ormea.
79 *Postoperative Icterus.—Sull' ittero postop. G. Campora.
80. *Ricerca del glicogene nel fegato col metodo microchimico (glycogen in liver). G. Massari.
81 New Trephine.—Di un nuovo trapano per la formazione di un lembo osteo-periosteo-cutaneo. O. Cantelli.
82 (No. 54.) *Studio della patogenesi nervosa dell'asma. G. Gualdrini.
83 *La fonesi plessica meso-sternale nelle cardiomegalie (percussion findings in case of enlargement of the heart). G. Pollacci.
84 *Considerazioni statistiche sull'epitelioma del labbro (of lips). G. Serafini.
85 *Processo semplice e rapido ad uso del medico per scoprire l'arsenico, il fosforo e l'antimonio (simple test for phosphorus, etc.). F. Pedrazzini.
86 (No. 57.) *Parassitismo cellulare nella sifilide. I. Bandi.
87 *Contributo sperimentale alla leucoterapia nelle infezioni peritoneali. S. Diez and G. Campora.

88 Contributo alla patologia delle adenite cervicali suppurative acute della prima infanzia. G. Comforti and T. Bordoni.
89 (No. 60.) *Contributo alla chirurgia del polmone. E. Skultecki.
90 *Sul valore hypotensivo del veratrum viride. E. Pesci.
91 *Di un nuovo sensibilissimo reattivo dell' albumina nelle orine (test for albumin in urine). A. Tognetti.
92 (No. 63.) *Intorno all'azione del radio sul virus rabido (action of radium in rabies). G. Tizzoni and A. Bongiovanni.
93 Studio della polmonite traumatica fibrinosa. A Galluzzi.
94 *Un nuovo modo di riparare le perdite di sostanza ossea (bone repair). P. C. Morelli.
95 *Production of Toxins Destructive to Larvæ.—Studii sull' origine e condizioni di produzione delle tossine larvicide. A. Bongiovanni.
96 (No. 66.) *La diagnosi e la prognosi della affezioni cerebrali acute. Riva-Rocci.
97 Caso di amaurosi manifestatasi in seguito all'estrazione di un dente (after extraction of tooth). A. Santa Maria.
98 (No. 72.) *Gastric Functions After Splenectomy.—Funzioni gastriche in uno smilzato. T. Silvestri.
99 Sulla malattia di Stokes Adams. A. Perez.
100 (No. 75.) Ricerche sull'amilasi nel siero di sangue e nelle urine. G. Migliacci.
101 *La reazione di Weber-Rossel in rapporto dell'azione catalitica dei metalli pesanti (test for "occult blood" in feces after ingestion of mercury, etc.). G. Guyot.
102 Sulla pseudoparalisi eredo-sifilitica o malattia del Parrot. G. Setti.
103 (No. 78.) *Intorno alla cura della rabbia col radio (radium in rabies). A. Calabrese.
104 Trypanosomiasi sperimentale e gravidanza. A. Massaglia.
105 Emorragia del piede del peduncolo cerebrale destro (sindrome di Weber). F. Mariani.
106 Sopra 5 casi di pleurite reumatica a forma epidemica. G. De Polini.

77. **Primary Aspergillosis of the Lungs.**—Baccarani describes 3 cases, all occurring in one family, the patients ranging in age from 9 to 19 years. There were no known predisposing factors in these cases, 2 of which terminated fatally. The course of the affection was extremely rapid, suggesting fulminating typhoid in some respects. One patient, a girl, died of hemoptysis a month after the first symptoms, and another girl succumbed to progressive marasmus in 40 days. The youngest child, a boy, was treated with arsenic and iodid at the first symptoms, two weeks after the death of his second sister; at the same time the house was thoroughly disinfected. In 2 weeks the boy had completely recovered. The rapid emaciation in the fatal cases was more striking than Baccarani has ever witnessed in any other affection.

79. **Postoperative Icterus.**—Four typical cases are described by Campora. The operation was fixation of a wandering kidney in one and bilateral inguinal herniotomy in the others. There was no appreciable hemorrhage in any case. The icterus was probably of toxic origin, due to the action of the chloroform on a predisposed liver. Three of the the patients were alcoholics and one of these succumbed with intense icterus, edema, subdelirium, and coma. The others recovered.

80. **Glycogen in the Liver.**—Massari mounts in paraffin the sections of the liver to be examined, and treats them with a mucilaginous solution of iodin for examination under the microscope. The granules of glycogen show plainly with this technic at an enlargement of 47 diameters, and their distribution can be instructively studied at 297 diameters. The findings by this microchemical technic amply confirm the importance of the presence of glycogen in differentiating slow from sudden death. Also the important effect of putrefaction in causing the glycogen to vanish. In case of death from intoxication with illuminating gas, the proportion of glycogen in the liver cell is enormous in comparison with that found in other cases of deaths from violence or accident. No glycogen is found in case of acute and chronic phosphorus poisoning. In acute arsenic poisoning traces of glycogen are apparent, but not in the chronic cases. It is abundant in acute poisoning from corrosive sublimate, and traces are apparent in the chronic cases. The glycogen vanishes exceptionally slowly in case of putrefaction after poisoning with illuminating gas. Control chemical tests confirmed the accuracy of the microchemical findings.

82. **Pathogenesis of Asthma.**—Gualdrini thinks that nervous factors play a large part in the origin of asthma in some cases, and here relates 3 typical examples. The asthma came on each time without any appreciable cause aside from emotional stress on neuropathic antecedents.

83. **Percussion Findings with Enlargement of the Heart.**—Pollaci says that dulness over the body of the sternum is frequently an important sign of enlargement of the right heart. It is especially valuable when the breasts are so well developed that it is hard to trace the right outline of the relative cardiac dulness. He describes the mechanism and reasons for the changes in the percussion findings over the sternum under these conditions.

84. **Epithelioma of the Lip.**—Serafini's experience with 100 cases of epithelioma of the lip has shown that the glands become involved in two or three months, but that radical resection of tumor and glands is followed by a complete cure in 73 per cent. of the cases. Recurrence is generally observed within six months. Eight years elapsed in one of his cases, and he is inclined to regard this as rather a new growth than a recurrence after such a long interval. In 24 cases the recurrence was on the lip, and in 17 in the submaxillary region. Advanced age does not affect the results of operative treatment unfavorably. Even in case of repeated recurrence, the results may finally be a complete cure. All but 14 of his patients were men. They succumbed generally at last to some respiratory affection after the successful removal of the cancer.

85. **Test for Arsenic, Phosphorus and Antimony.**—Pedrazzini has modified slightly the Gutzeit test so that it can serve to differentiate intoxication from arsenic, phosphorus and antimony. A little of the substance to be examined is placed in a test tube with some sulphuric acid and a scrap of zinc (free from arsenic). A crystal of silver nitrate is placed on top of a disc of filtering paper laid over the mouth of the test tube. In case of the presence of arsenic, a gas is generated which turns the silver nitrate yellow or black. The same reaction occurs also with phosphorus and with antimony. These substances can be excluded and the findings limited to arsenic by using a solution of silver nitrate instead of the crystals. A bent tube conducts the gas from the first test tube into a second test tube containing the silver solution. When the gas generation is finished, the silver solution is filtered and the Gutzeit test is then applied to the filtrate with the solid silver nitrate as above. Phosphorus can be detected with the same technic, estimating the phosphoric acid with uranium, or potassium acetate. Antimony is revealed by washing the filtrate with a solution of tartaric acid treated with dilute hydrochloric acid. Trichlorid of antimony results, and, treated with hydrogen sulphid, an orange precipitate is thrown down.

86. **Spirochetes Inside the Cells in Syphilis.**—Bandi calls attention anew to the importance of the accumulations of spirochetes inside the cells. It is not a phagocytic process, as the spirochetes seem to be intact while the cell seems to have suffered. He believes that the condition indicates actual vital parasitism of the cell.

87. **Artificial Production of Leucocytosis in Peritoneal Infection.**—Diez has been experimenting with nucleic acid as a means of enhancing the vital resistance of the peritoneum to infection. The results were all extremely favorable, both in his experimental and clinical research. He advocates, therefore, injection of a 2 per cent. solution of nucleic acid as a preliminary to abdominal operations and also a few hours after perforation of the stomach or intestine.

89. **Surgery of the Lungs.**—Skultecki sutured the lung after a serious stab wound, and the patient suffered long from various mishaps resulting from infection of the deep lung tissue. This case and others in his experience have convinced him of the inadvisability of attempting to suture a stab wound of the lung. Immediate aseptic occlusion is the best technic, he believes.

90. **Veratrum Viride in Case of Increased Arterial Tension.**—Pesci tabulates the details of 19 cases to show the value of veratrum viride in reducing exaggerated arterial tension. He believes that it acts by soothing the heart and dilating the arteries. The indications as he formulates them are: 1, Chronic nephritis, in which it serves to prevent and to combat uremia and to postpone asystolia; 2. lead poisoning, in which it acts on the colics probably due to spasm of the splanchnic arteries; and, 3, the early stages of arteriosclerosis, in which it reduces the pressure and retards the progress of the affection. His dosage is .25 c.c. subcutaneously in uremic attacks, repeating the dose at half-hour intervals. In case of

nephritic hypertension with dyspnea or in lead colic, he gives from 20 to 30 and 50 drops in the 24 hours, keeping the drug up for 5 or 6 days. In hypertension from any cause he gives from 15 to 30 drops a day for nearly a week. He believes in suspending the drug for a few days and then resuming it. The above dosage refers to the fluidextract; he doubles the doses for the tincture. Of course the best results follow when the walls of the arteries are still capable of enlarging. In case they have lost their elasticity, then drugs are preferable which act on the blood, rendering it more fluid, or on the kidneys, promoting diuresis, or promoting the metabolism, like iodin. An appropriate diet is all-important, and should be maintained for months.

91. **Sensitive Test for Albumin in Urine.**—Tognetti describes the research which resulted in what he calls the "tanno-hydrochloric" test, which reveals albumin even in a proportion of 1 to 200,000. The advantages of tannic acid as a reagent for albumin have long been known, but it could not be used in urine as other ingredients of the urine also give a positive response. He has removed this difficulty by adopting the following technic, which, he says, renders the test reliable, instructive and extremely sensitive. He adds to the urine an equal amount of an alcoholic solution of tannin (1.5 gm. of tannin in 100 c.c. of 90 per cent. alcohol). The whole is then heated and an equal quantity of a .33 per cent. aqueous solution of hydrochloric acid is added—equal to the quantity of urine. In the presence of albumin the fluid becomes opaque and the albumin is gradually thrown down in a yellowish-white precipitate. In case of icterus, the bile pigments must first be removed by the Grocco technic, that is, by adding glacial acetic acid in the proportion of one-thirtieth or one-fiftieth of the amount of the urine. With the exception of this precaution, which is necessary with other tests for albumin, the tanno-hydrochloric test, he declares, can be regarded as free from causes of error. The combination of tannic acid, hydrochloric acid, alcohol and heat eliminates the usual drawbacks of tests for albumin.

92. **Action of Radium in Rabies.**—Tizzoni here mentions that he has been successful in saving 50 animals (rabbits) by means of radium after inoculation with rabies, which otherwise would have been fatal. Some of the rabbits have been under observation for more than a year. The curative and preventive effects of the radium were constant and directly proportional to the extent of the exposures. There is a remarkable lack of proportion, however, between the number of radioactive units in the specimen of radium and the curative effects observed, the smaller specimens being nearly as powerful as those five times larger. This shows that small amounts can be used in the clinic, free from the least dangerous tendency. This article is a reply to those who have contradicted his assertions. His latest researches, he says, only confirm his first announcements.

94. **Implantation of a Muscle to Repair a Defect in a Long Bone.**—Morelli describes a case in which he aided the healing of a rebellious osteomyelitic process and large defect by implanting part of a muscle. The cavity was in the humerus and after curetting he implanted part of the deltoid muscle, holding it in place with a few sutures. Healing was remarkably prompt and complete, and he recommends general adoption of this method of repairing a defect. Part of the belly of the muscle can be easily utilized and the procedure does not affect the functions of the muscle in the least. He is now conducting experimental research to learn the mechanism of repair afterward.

95. **Toxins Destructive of Larvæ.**—Bongiovanni has been studying the sudden destruction of the larvæ of the malaria mosquitoes which is sometimes observed in certain pools of standing water. He announces that it is the result of the action of toxins generated by a bacillus and streptobacillus, which he found constantly in such waters. These larvicidal toxins are not produced unless the water reaches a temperature of from 30 to 34 C.

96. **Diagnosis and Prognosis of Acute Cerebral Affections.**—Riva-Rocci analyzes 31 cases observed during the last 5 years and discusses the various differential points. He remarks in regard to the prognosis that in case of concussion of the brain the immediate prognosis is rather favorable, while the later should be guarded. In cerebral embolism, the prognosis depends on the heart and condition of the arteries and on the nature of the lesion. Syphilitic lesions are easily influenced by treatment, but the ultimate outcome has been worse in his experience than with lesions of other origin. The prognosis in encephalitis depends on the nature of the disease germ and the operability of the lesions.

98. **Stomach Functions After Splenectomy.**—In the case described the stomach functioning had not been specially examined before the removal of the spleen, but afterward it was found exceptionally perfect. The digestive functions were performed with rare perfection.

101. **Mercury, Etc., in Relation to Tests for "Occult Blood."**—Guyot applied the guaiac or aloin test for "occult blood" in the feces after administration of mercury, iron or other metallic drug. When large doses of mercury had been given the findings were occasionally positive. He ascribes this to the bile secreted in exceptional amounts under the influence of the cholagogue. The same results were obtained when cholagogues other than mercury were given (podophyllin or rhubarb).

103. **Action of Radium in Rabies.**—Calabrese's control research, he states, has entirely failed to sustain Tizzoni's announcements in regard to the curative or preventive action of radium in rabies. Calabrese's results were invariably negative.

NEW PATENTS.

Recent patents of interest to physicians:

827066 Therapeutic match. Augustus P. Hafner, New York.
826659 Apparatus for automatically signaling the presence of deleterious gases in the atmosphere. Henri Hauger, Paris, France.
826949 Combination carton and gauze cap. Charles R. Lindsay, Jr., Chicago.
826685 Medical irrigator. John A. Noble, San Francisco.
827030 Sanitary house. Edward J. Noblett, Chicago.
826881 Catamenial sack. David A. Powdermaker, Philadelphia.
826805 Invalids' folding table. John Scheibner, Beaver Falls, Pa.
826614 Making hydrochloric acid and calcium carbid. William H. Seamon, El Paso, Texas.
826699 Diastatic substance and making same. Jokichi Takamine, New York.
826978 Combined invalid and surgical couch. Virginia Whittington, Valdosta, Ga.
826813 Artificial leg. Chester B. Winn, Buffalo, N. Y.
826815 Suspensory bandage. Henry J. Wortz, Philadelphia.
827207 Suspensory bandage and dressing retainer. Joseph L. Boehm, St. Louis.
827610 Washing and disinfecting apparatus. Joseph G. Branch, St. Louis.
827420 Making hydrosulfite solutions. Philip S. Clarkson, Beverly, N. J.
827092 Sanitary disinfecting and deodorizing block. Joseph T. Freestone, Rock Ferry, England.
827099 Medical device. Frederick Hofmann, New York.
827693 Hypodermic syringe. Frederick W. Korb, Cleveland, Ohio.
827162 Sanitary device for closets. Albert F. Lesler, New York.
827645 Ear-trumpet. Christopher W. Levalley, Milwaukee, Wis.
827383 Aseptic syringe. Patrick J. McElroy, Cambridge, and W. A. Randall, Swampscott, Mass.
827387 Apparatus for mounting and cooling statical ozonizers. Marius Otto, Paris, France.
827396 Sterilizer and pasteurizer. Sam G. Scanlan, Madison, Wis.
827399 and 827400 Apparatus for purifying and softening water. S. L. Shenerman and J. F. Hand, Des Moines, Iowa.
827193 Surgical instrument. George Thrash, Hominy, N. C.
827133 Massage instrument. Irving A. Weston, Syracuse, N. Y.
828178 Bed-pan. Adele E. Betts, Kensington, Md.
828268 Making sulfur trioxid. Henry S. Blackmore, Mount Vernon, N. Y.
828022 Truss. Samuel A. Donnelly, Chicago.
827720 Artificial leg. Wm. E. Irwin, Yorkville, S. C.
827721 Producing salts of oxyacids of chlorin. Arthur E. Gibbs, Niagara Falls, N. Y.
827910 Apparatus for administering liquid anesthetics. John A. Hollenberger, Hagerstown, Md.
828221 Exercising apparatus for correcting deformities. Franz Langel, Cologne, Germany.
828292 Pocket audiphone. Eugene W. Schneider, New York.
828146 Forceps. James Somers, San Juan, Cal.
827896 Micrographic microscope. Otto H. F. Vollbehr, Halensee, near Berlin, Germany.
828007 Operating table. John D. Williams, Lewisville, N. C.
828809 Belt attachment for sanitary supports. Jennie L. Bornstein, Dayton, Ohio.
828722 Atomizer and like instrument. Frank C. Dorment, Kalamazoo, Mich.
828733 Cabinent for treating diseases by light. B. F. Fuller, El Reno, Okla.
828311 Vaccine shield. Christian Heidemann, St. Louis.
828651 Suspensory. Max B. Hirsch, Chicago.
828611 Capsule filling machine. Jasper F. Kobler, Niagara Falls, N. Y.
828754 Bed-pan. John Lopitsch and F. Naumann, Green Bay, Wis.
828758 Valve or stopper. Christian W. Meinecke, Jersey City Heights, N. J.